Digitized by the Internet Archive
in 2026

https://archive.org/details/memoirsofdrjosep0001unse

81.408

MEMOIRS

OF

Dr. Joseph Priestley,

TO THE YEAR 1795,

WRITTEN BY HIMSELF:

WITH A CONTINUATION, TO THE TIME OF HIS DECEASE,

BY HIS SON, JOSEPH PRIESTLEY:

AND OBSERVATIONS ON HIS WRITINGS,

BY THOMAS COOPER, PRESIDENT JUDGE OF THE 4TH. DISTRICT OF PENNSYLVANIA: AND THE REV. WILLIAM CHRISTIE.

NEW YORK STATE LIBRARY

NORTHUMBERLAND:
PRINTED BY JOHN BINNS.

1806.

District of Pennsylvania, to wit:

BE IT REMEMBERED, that on the twenty-eighth of December in the thirtieth year of the Independence of the United States of America, A. D. 1805, Joseph Priestley, of the said district, hath deposited in this Office the Title of a Book, the right whereof he claims as Proprietor, in the words following, to wit:

"Memoirs of Dr. Joseph Priestley, to the year 1795, "written by himself, with a continuation, to the time of "his decease, by his Son Joseph Priestley, and observati- "ons on his writings, by Thomas Cooper, President Judge "of the 4th district of Pennsylvania, and the Rev. William "Christie."

In conformity to the Act of the Congress of the United States, intitled "An Act for the encouragement of learning by securing the copies of Maps, Charts, and Books to the authors and proprietors of such copies during the times therein mentioned." And also to the Act entitled "An Act supplementary to an Act entitled "An Act for the encouragement of learning by securing the copies of Maps, Charts, and Books to the authors and proprietors of such copies during the times therein mentioned." And extending the benefits thereof to the Arts of designing, engraving, and etching, historical and other prints.

D. CALDWELL,
Clerk of the District of Pennsylvania.

192
P949x
1806
Vol.1

TABLE OF CONTENTS,

OF

VOLUME I.

PREFACE, - - - PAGE i

Memoirs with Notes, - - - 1

Continuation of the Memoirs, - - 129

Appendix No. I. An Account of Dr. Priestley's Discoveries in Chemistry, and of his writings on that, and other Scientific subjects, - 223

— — No. 2. An Account of his Metaphysical writings, - - 294

12Aug'4(M

PREFACE.

MY father, Dr. Priestley, having taken the trouble of writing down the principal occurrences of his life, to the period of his arrival in this country, that account is now presented to the public in the state in which he left it, one or two trifling alterations excepted. The simple unaffected manner in which it is written, will be deemed, I have no doubt, far more interesting, than if the narrative itself had been made the text of a more laboured composition.

Independent of the desire, so universal among mankind, to know somewhat of the private as well as the public history of those who have made themselves eminent among their fellow citizens, the life of my father is likely to be more useful as well as more interesting than those of the generality of literary men; not only as it is an account of great industry combined with great abilities, successfully exerted for the extension of human improvement, but because it affords a striking proof of the value

of

of rational christianity, adopted upon mature reflection and practiced with habitual perseverance.

Few men have had to struggle for so many years with circumstances more straitened and precarious than my father; few men have ventured to attack so many or such inveterate prejudices respecting the prevalent religion of his country, or have advanced bolder or more important opinions in opposition to the courtly politics of the powers that be; few have had to encounter more able opponents in his literary career, or have been exposed to such incessant and vindictive obloquy, from men of every description, in return for his unremitting exertions in the cause of truth; yet none have more uniformly proceeded with a single eye, regardless of consequences, to act as his conviction impelled him, and his conscience dictated. His conduct brought with it its own reward, reputation and respect from the most eminent of his contemporaries, the affectionate attachment of most valuable friends, and a cheerfulness of disposition arising in part from conscious rectitude which no misfortunes could long repress. But to me it seems, that conscious rectitude alone would hardly, of itself, have been able to support him under some

of

of the afflictions he was doomed to bear. He had a farther resource, to him never failing and invaluable, a firm persuasion of the benevolence of the Almighty towards all his creatures, and the conviction that every part of his own life, like every part of the whole system, was preordained for the best upon the whole of existence. Had he entertained the gloomy notions of Calvinism in which he was brought up, this cheering source of contentment and resignation would probably have failed him, and irritation and despondency would have gained an unhappy ascendancy. But by him the deity was not regarded as an avenging tyrant, punishing, for the sake of punishing his weak and imperfect creatures, but as a wise and kind parent, inflicting those corrections only that are necessary to bring our dispositions to the proper temper, and to fit us for the highest state of happiness of which our natures are ultimately capable.

With these views of the present and the future, it is no wonder that he submitted with perfect resignation to the inevitable vicissitudes of human life, and looked forward to futurity, as a period of existence when his capacity for receiving happiness would be greater because his capacity for communicating it would be enlarged.

My

My father's narrative closing with his arrival in this country, where he has done so much for the promotion of useful knowledge of all kinds, I have compleated the account of his life from that period to the termination of it. The Notes have been added to the narrative as desireable illustrations of the passages to which they refer.

I have likewise thought it proper to add a review of my father's literary labours, in order to give the reader a knowledge of his opinions on many important subjects, likewise, of the share in the increase of human knowledge, which may be justly ascribed to his exertions. The Appendices giving an account of his Chemical, Philosophical, Metaphysical, Political and Miscellaneous writings, as well as the Summary of his religious opinions, are written by my friend Judge Cooper, formerly of Manchester in England. For the Appendix containing an analysis of my father's Theological writings, I am indebted to the Rev. W. Christie, formerly of Montrose in Scotland.

The work might have been made more interesting as well as entertaining, had I deemed myself at liberty to have published letters addressed to my father by

by persons of eminence in this country, as well as in Europe. But those communications that were intended to be private, shall remain so; as I do not think I have a right to amuse the public either against, or without, the inclinations of those who confided their correspondence to his care.

I regret, that more of the present work is not the production of my father's pen; and I hope the reader will make allowance for the imperfection of that portion of it, for which I have made myself responsible.

JOSEPH PRIESTLEY.

NORTHUMBERLAND, PENNSYLVANIA,
May 1st, 1805.

MEMOIRS

OF

DR. JOSEPH PRIESTLEY.

[WRITTEN BY HIMSELF.]

HAVING thought it right to leave behind me some account of my *friends* and *benefactors*, it is in a manner necessary that I also give some account of *myself*; and as the like has been done by many persons, and for reasons which posterity has approved, I make no farther apology for following their example. If my writings in general have been useful to my cotemporaries, I hope that this account of myself will not be without its use to those who may come after me, and especially in promoting virtue and piety, which I hope I may say it has been my care to practice myself, as it has been my business to inculcate them upon others.

My father, Jonas Priestley, was the youngest son of Joseph Priestley, a maker and dresser of woollen cloth. His first wife, my mother, was the only child of Joseph Swift, a farmer at Shafton, a village about six miles south east of Wakefield. By this wife he had six children, four sons and two daughters. I, the oldest, was born on the thirteenth of March, old style 1733, at Fieldhead about six miles south west of Leeds in Yorkshire. My mother dying in in 1740, my father married again in 1745, and by his second wife had three daughters.

My mother having children so fast, I was very soon committed to the care of her father, and with him I continued with little interruption till my mother's death,

It is but little that I can recollect of my mother. I remember, however, that she was careful to teach me the Assembly's Catechism, and to give me the best instructions the little time that I was at home. Once in particular, when I was playing with a pin, she asked me where I got it; and on telling her that I found it at my uncle's, who lived very near to my father, and where I had been playing with my cousins, she made me carry it back again; no doubt

doubt to impress my mind, as it could not fail to do, with a clear idea of the distinction of property, and of the importance of attending to it. She died in the hard winter of 1739, not long after being delivered of my youngest brother; and having dreamed a little before her death that she was in a delightful place, which she particularly described, and imagined to be heaven, the last words she spake, as my aunt informed me, were "Let me go to that fine "place."

On the death of my mother I was taken home, my brothers taking my place, and was sent to school in the neighbourhood. But being without a mother, and my father incumbered with a large family, a sister of my fathers, in the year 1742, relieved him of all care of me, by taking me entirely to herself, and considering me as her child, having none of her own. From this time she was truly a parent to me till her death in 1764.

My aunt was married to a Mr. Keighly, a man who had distinguished himself for his zeal for religion and for his public spirit. He was also a man of considerable property, and dying soon after I went to them, left the greatest part of his fortune to my aunt for

life, and much of it at her disposal after her death.

By this truly pious and excellent woman, who knew no other use of wealth, or of talents of any kind, than to do good, and who never spared herself for this purpose, I was sent to several schools in the neighbourhood, especially to a large free school, under the care of a clergyman, Mr. Hague, under whom, at the age of twelve or fifteen, I first began to make any progress in the Latin Tongue, and acquired the elements of Greek. But about the same time that I began to learn Greek at this public school, I learned Hebrew on holidays of the dissenting minister of the place, Mr Kirkby, and upon the removal of Mr. Hague from the free school, Mr. Kirkby opening a school of his own, I was wholly under his care. With this instruction I had acquired a pretty good knowledge of the learned languages at the age of sixteen. But from this time Mr. Kirkby's increasing infirmities obliged him to relinquish his school, and beginning to be of a weakly consumptive habit, so that it was not thought adviseable to send me to any other place of education, I was left to conduct my studies as well as I could

till

till I went to the academy at Daventry in the year 1752.

From the time I discovered any fondness for books my aunt entertained hopes of my being a minister, and I readily entered into her views. But my ill health obliged me to turn my thoughts another way, and with a view to trade, I learned the modern languages, French, Italian, and High Dutch without a master; and in the first and last of them I translated, and wrote letters, for an uncle of mine who was a merchant, and who intended to put me into a counting house in Lisbon. A house was actually engaged to receive me there, and every thing was nearly ready for my undertaking the voyage. But getting better health my former destination for the ministry was resumed, and I was sent to Daventry, to study under Mr. Ashworth, afterwards Dr. Ashworth.

Looking back, as I often do, upon this period of my life, I see the greatest reason to be thankful to God for the pious care of my parents and friends, in giving me religious instruction. My mother was a woman of exemplary piety, and my father also had a strong sense of religion, praying with his family morning and evening, and carefully teaching his chil-

dren and servants the Assembly's Catechism, which was all the system of which he had any knowledge. In the latter part of his life he became very fond of Mr. Whitfield's writings, and other works of a similar kind, having been brought up in the principles of Calvinism, and adopting them, but without ever giving much attention to matters of speculation, and entertaining no bigotted aversion to those who differed from him on the subject.

The same was the case with my excellent aunt, she was truly Calvinistic in principle, but was far from confining salvation to those who thought as she did on religious subjects. Being left in good circumstances, her home was the resort of all the dissenting ministers in the neighbourhood without distinction, and those who were the most obnoxious on account of their heresy were almost as welcome to her, if she thought them honest and good men, (which she was not unwilling to do) as any others.

The most heretical ministers in the neighbourhood were Mr. Graham of Halifax, and Mr. Walker of Leeds, but they were frequently my Aunt's guests. With the former of these my intimacy grew with my years, but chiefly after I became a preacher. We

kept

kept up a correspondence to the last, thinking alike on most subjects. To him I dedicated my *Disquisitions on Matter and Spirit*, and when he died, he left me his manuscripts, his Polyglot bible, and two hundred pounds. Besides being a rational christian, he was an excellent classical scholar, and wrote Latin with great facility and elegance. He frequently wrote to me in that language.

Thus I was brought up with sentiments of piety, but without bigotry, and having from my earliest years given much attention to the subject of religion, I was as much confirmed as I well could be in the principles of Calvinism, all the books that came in my way having that tendency.

The weakness of my constitution, which often led me to think that I should not be long lived, contributed to give my mind a still more serious turn; and having read many books of *experiences*, and in consequence believing that a *new birth* produced by the immediate agency of the Spirit of God, was necessary to salvation, and not being able to satisfy myself that I *had* experienced any thing of the kind, I felt occasionally such distress of mind as it is not in my power to describe, and which I still look back

upon with horror. Notwithstanding I had nothing very material to reproach myself with, I often concluded that God had forsaken me, and that mine was like the case of Francis Spira, to whom, as he imagined, repentance and salvation were denied. In that state of mind I remember reading the account of the man in the iron cage in the Pilgrim's Progress with the greatest perturbation.

I imagine that even these conflicts of mind were not without their use, as they led me to think habitually of God and a future state. And though my feelings were then, no doubt, too full of terror, what remained of them was a deep reverence for divine things, and in time a pleasing satisfaction which can never be effaced, and I hope, was strengthened as I have advanced in life, and acquired more rational notions of religion. The remembrance, however, of what I sometimes felt in that state of ignorance and darkness gives me a peculiar sense of the value of rational principles of religion, and of which I can give but an imperfect description to others.

As *truth*, we cannot doubt, must have an advantage over *error*, we may conclude that the want of these

these peculiar feelings is compensated by something of greater value, which arises to others from always having seen things in a just and pleasing light; from having always considered the Supreme Being as the kind parent of all his offspring. This, however, not having been my case, I cannot be so good a judge of the effects of it. At all events, we ought always to inculcate just views of things, assuring ourselves that *proper feelings and right conduct* will be the consequence of them.

In the latter part of the interval between my leaving the grammar school and going to the academy, which was something more than two years, I attended two days in the week upon Mr. Haggerstone, a dissenting minister in the neighbourhood, who had been educated under Mr. Maclaurin. Of him I learned Geometry, Algebra and various branches of Mathematics, theoretical and practical. And at the same time I read, but with little assistance from him, Gravesend's Elements of Natural Philosophy, Watt's Logic, Locke's Essay on the Human Understanding, &c, and made such a proficiency in other branches of learning, that when I was admitted at the academy (which was on Coward's foundation) I was excused

cused all the studies of the first year, and a great part of those of the second.

In the same interval I spent the latter part of every week with Mr. Thomas, a baptist minister now of Bristol but then of Gildersome, a village about four miles from Leeds, who had had no learned education. Him I instructed in Hebrew, and by that means made myself a considerable proficient in that language. At the same time I learned Chaldee and Syriac, and just began to read Arabic. Upon the whole, going to the academy later than is usual, and being thereby better furnished, I was qualified to appear there with greater advantage.

Before I went from home I was very desirous of being admitted a communicant in the congregation which I had always attended, and the old minister, as well as my Aunt, were as desirous of it as myself, but the elders of the Church, who had the government of it, refused me, because, when they interrogated me on the subject of the *sin of Adam*, I appeared not to be quite orthodox, not thinking that all the human race (supposing them not to have any sin of their own) were liable to the wrath of God, and the pains of hell for ever, on account of

that

that sin only; for such was the question that was put to me. Some time before, having then no doubt of the truth of the doctrine, I well remember being much distressed that I could not feel a proper repentance for the sin of Adam; taking it for granted that without *this* it could not be forgiven me. Mr. Haggerstone above mentioned, was a little more liberal than the members of the congregation in which I was brought up, being what is called a *Baxterian*;* and

* BAXTERIANS, The famous Non-conformist Richard Baxter who flourished about the middle of the last Century, attempted a Coalition between the doctrines of Calvin and Arminius. The former of these held that God from the beginning had elected a few of the human race to be saved, without reference to their good actions in this life, and had left the rest of mankind in a state of final and inevitable reprobation. The latter was of opinion that the Christian dispensation furnished the means of final Salvation to all men, though the merits of the death of Christ would be ultimately advantageous to believers only. Baxter, thought with Calvin that some among mankind were from the beginning elected unto eternal life, and gifted from above with the saving grace necessary in the first instance to the several steps of a believer's christian character; but he thought also with Arminius that all men had common grace imparted to them, sufficient to enable them if they chose, to attain unto final Salvation by using the means ordained by Christ and his Apostles. Calvin also held the final

and his general conversation had a liberal turn, and such as tended to undermine my prejudices. But what contributed to open my eyes still more was the conversation of a Mr. Walker, from Ashton under line, who preached as a candidate when our old minister was superannuated. He was an avowed Baxterian, and being rejected on that account his opinions were much canvassed, and he being a guest at the house of my Aunt, we soon became very intimate, and I thought I saw much of reason in his sentiments. Thinking farther on these subjects, I was, before I went to the academy, an Arminian, but had by no means rejected the doctrine of the trinity, or that of atonement.

Though after I saw reason to change my opinions I found

---

nal perseverance of the Saints, or as it has since been expressed that a believer might fall foully but not finally, whereas Baxter seems to have thought that not every one who had saving grace imparted to him would persevere to the end, or as the Arminian Methodists quaintly express it, he held that a believer may fall both foully and finally. The compromising doctrine of Baxter may be seen in his very learned and unintelligible work entitled Catholick Theologia. He used to be an annual communicant in the Church of England by way of exemplying his accommodating opinions. T. C.

I found myself incommoded by the rigour of the congregation with which I was connected, I shall always acknowledge with great gratitude that I owe much to it. The business of religion was effectually attended to in it. We were all catechized in public 'till we were grown up, servants as well as others: the minister always expounded the scriptures with as much regularity as he preached, and there was hardly a day in the week, in which there was not some meeting of one or other part of the congregation, On one evening there was a meeting of the young men for conversation and prayer. This I constantly attended, praying extempore with others when called upon.

At my Aunt's there was a monthly meeting of women, who acquitted themselves in prayer as well as any of the men belonging to the congregation. Being at first a child in the family, I was permitted to attend their meetings, and growing up insensibly, heard them after I was capable of judging. My Aunt after the death of her husband, prayed every morning and evening in her family, until I was about seventeen, when that duty devolved upon me.

The Lord's day was kept with peculiar strictness.

No

No victuals were dressed on that day in any family. No member of it was permitted to walk out for recreation, but the whole of the day was spent at the public meeting, or at home in reading, meditation, and prayer, in the family or the closet.

It was my custom at that time to recollect as much as I could of the sermons I heard, and to commit it to writing. This practice I began very early, and continued it until I was able from the heads of a discourse to supply the rest myself. For not troubling myself to commit to memory much of the amplification, and writing at home almost as much as I had heard, I insensibly acquired a habit of composing with great readiness; and from this practice I believe I have derived great advantage through life; composition seldom employing so much time as would be necessary to write in long hand any thing I have published.

By these means, not being disgusted with these strict forms of religion as many persons of better health and spirits probably might have been (and on which account I am far from recommending the same strictness to others) I acquired in early life a serious turn of mind. Among other things I had at this

this time a great aversion to *Plays and Romances*, so that I never read any works of this kind except Robinson Crusoe, until I went to the academy. I well remember seeing my brother Timothy reading a book of Knight Errantry, and with great indignation I snatched it out of his hands, and threw it away. This brother afterwards, when he had for some time followed my fathers business (which was that of a Cloth-dresser) became, if possible, more serious than I had been; and after an imperfect education, took up the profession of a minister among the Independents, in which he now continues.

While I was at the Grammar School I learned *Mr. Annet's Short hand*, and thinking I could suggest some improvements in it, I wrote to the Author, and this was the beginning of a correspondence which lasted several years. He was, as I ever perceived, an unbeliever in Christianity and a necessarian. On this subject several letters, written with care on both sides, passed between us, and these Mr. Annet often pressed me to give him leave to publish, but I constantly refused. I had undertaken the defence of Philosophical Liberty, and the correspondence was closed without my being convinced of

the

the fallacy of my arguments, though upon studying the subject regularly, in the course of my academical education afterwards, I became a confirmed Necessarian, and I have through life derived, as I imagine, the greatest advantage from my full persuasion of the truth of that doctrine.

My Aunt, and all my relations, being strict Calvinists, it was their intention to send me to the academy at *Mile-end*, then under the care of Dr. Cander. But, being at that time an Arminian, I resolutely opposed it, especially upon finding that if I went thither, besides giving an *experience*, I must subscribe my assent to ten printed articles of the strictest calvinistic faith, and repeat it every six months. My opposition, however, would probable have been to no purpose, and I must have adopted some other mode of life, if Mr. Kirkby above mentioned had not interposed, and strongly recommended the academy of Dr. Doddridge, on the idea that I should have a better chance of being made a scholar. He had received a good education himself, was a good classical scholar, and had no opinion of the mode of education among the very orthodox Dissenters, and being fond of me, he was desirous

desirous of my having every advantage that could be procured for me. My good Aunt, not being a bigotted Calvinist, entered into his views, and Dr. Doddridge being dead, I was sent to Daventry, and was the first pupil that entered there. My Step-mother also, who was a woman of good sense, as well as of religion, had a high opinion of Dr. Doddridge, having been sometime housekeeper in his family. She had always recommended his Academy, but died before I went thither.

Three years, viz. from September 1752 to 1755, I spent at Daventry with that peculiar satisfaction with which young persons of generous minds usually go through a course of liberal study, in the society of others engaged in the same pursuits, and free from the cares and anxieties which seldom fail to lay hold on them when they come out into the world.

In my time, the academy was in a state peculiarly favorable to the serious pursuit of truth, as the students were about equally divided upon every question of much importance, such as Liberty and Necessity, the Sleep of the soul, and all the articles of theological orthodoxy and heresy; in consequence of which

all these topics were the subject of continual discussion. Our tutors also were of different opinions; Dr. Ashworth taking the orthodox side of every question, and Mr. Clark, the sub-tutor, that of heresy, though always with the greatest modesty.

Both of our tutors being young, at least as tutors, and some of the senior students excelling more than they could pretend to do in several branches of study, they indulged us in the greatest freedoms, so that our lectures had often the air of friendly conversations on the subjects to which they related. We were permitted to ask whatever questions, and to make whatever remarks, we pleased; and we did it with the greatest, but without any offensive, freedom. The general plan of our studies, which may be seen in Dr. Doddridge's published lectures, was exceedingly favourable to free enquiry, as we were referred to authors on both sides of every question, and were even required to give an account of them. It was also expected that we should abridge the most important of them for our future use. The public library contained all the books to which we were referred.

It was a reference to Dr. Hartley's Observations

on

on Man in the course of our Lectures, that first brought me acquainted with that performance, which immediately engaged my closest attention, and produced the greatest, and in my opinion the most favourable effect on my general turn of thinking thro' life. It established me in the belief of the doctrine of Necessity, which I first learned from Collins; it greatly improved that disposition to piety which I brought to the academy, and freed it from that rigour with which it had been tinctured. Indeed, I do not know whether the consideration of Dr. Hartley's theory contributes more to enlighten the mind, or improve the heart; it effects both in so super-eminent a degree.

In this situation, I saw reason to embrace what is generally called the heterodox side of almost every question.* But notwithstanding this, and though Dr.

* It will be seen in the course of these memoirs that from time to time as deeper reflection and more extensive reading incited him, he saw reason to give up almost all the peculiar theological and metaphysical opinions which he had imbibed in early youth; some of them with considerable difficulty, and all of them at the evident risk of considerable obloquy from those whom he highly respected, as well as from those on whom his interest appeared to depend. T. C.

Dr. Ashworth was earnestly desirous to make me as orthodox as possible, yet, as my behaviour was unexceptionable, and as I generally took his part in some little things by which he often drew upon himself the ill-will of many of the students, I was upon the whole a favourite with him. I kept up more or less of a correspondence with Dr. Ashworth till the time of his death, though much more so with Mr. Clark. This continued till the very week of his melancholy death by a fall from his horse at Birmingham, where he was minister.

Notwithstanding the great freedom of our speculations and debates, the extreme of heresy among us was Arianism; and all of us, I believe, left the academy with a belief, more or less qualified, of the doctrine of *atonement*.

Warm friendships never fail to be contracted at places of liberal education; and when they are well chosen are of singular use; Such was mine with Mr. Alexander of Birmingham. We were in the same class, and during the first year occupied the same room. By engagements between ourselves we rose early, and dispatched many articles of business every day. One of them, which continued all the time

time we were at the academy, was to read every day ten folio pages in some Greek author, and generally a Greek play in the course of the week besides. By this means we became very well acquainted with that language, and with the most valuable authors in it. This exercise we continued long after we left the academy, communicating to each other by letter an account of what we read. My life becoming more occupied than his, he continued his application to Greek longer than I did, so that before his death he was, I imagine, one of the best Greek scholars in this or any other country. My attention was always more drawn to mathematical and philosophical studies than his was.

These voluntary engagements were the more necessary, in the course of our academical studies, as there was then no provision made for teaching the learned languages. We had even no compositions, or orations, in Latin. Our course of lectures was also defective in containing no lectures on the scriptures, or on ecclesiastical history, and by the students in general (and Mr. Alexander and myself were no exceptions) commentators in general and ecclesiastical history also, were held in contempt.

On leaving the academy he went to study under his uncle Dr. Benson, and with him learned to value the critical study of the scriptures so much, that at length he almost confined his attention to them.

My other particular friends among my fellow students were Mr. Henry Holland, of my own class, Messrs. Whitehead, Smithson, Rotherham, and Scholefield in that above me, and Mr. Taylor in that below me. With all these I kept up more or less of a correspondence, and our friendship was terminated only by the death of those who are now dead, viz. the three first named of these six, and I hope it will subsist to the same period with those who now survive.

All the while I was at the academy I never lost sight of the great object of my studies, which was the duties of a christian minister, and there it was that I laid the general plan which I have executed since. Particularly I there composed the first copy of my *Institutes of Natural and Revealed Religion*, Mr. Clark, to whom I communicated my scheme, carefully perusing every section of it, and talking over the subject of it with me.

But I was much discouraged even then with the *impedi-*

impediment in my speech, which I inherited from my family, and which still attends me. Sometimes I absolutely stammered, and my anxiety about it was the cause of much distress to me. However, like St. Paul's *thorn in the flesh*, I hope it has not been without its use. Without some such check as this, I might have been disputatious in company, or might have been seduced by the love of popular applause as a preacher: whereas my conversation and my deliverery in the pulpit having nothing in them that was generally striking, I hope I have been more attentive to qualifications of a superior kind.

It is not, I believe, usual for young persons in dissenting academies to think much of their future situations in life. Indeed, we are happily precluded from that by the impossibility of succeeding in any application for particular places. We often, indeed, amused ourselves with the idea of our dispersion in all parts of the kingdom after living so happily together; and used to propose plans of meeting at certain times, and smile at the different appearance we should probably make after being ten or twenty years settled in the world. But nothing of this kind was ever seriously resolved upon by us.

For my own part, I can truly say I had very little ambition, except to distinguish myself by my application to the studies proper to my profession; and I cheerfully listened to the first proposal that my tutor made to me, in consequence of an application made to him, to provide a minister for the people of Needham Market in Suffolk, though it was very remote from my friends in Yorkshire, and a very inconsiderable place.

When I went to preach at Needham as a candidate, I found a small congregation, about an hundred people, under a Mr. Meadows, who was superannuated They had been without a minister the preceding year, on account of the smallness of the salary; but there being some respectable and agreeable families among them, I flattered myself that I should be useful and happy in the place, and therefore accepted the unanimous invitation to be assistant to Mr. Meadows, with a view to succeed him when he died. He was a man of some fortune.

This congregation had been used to receive assistance from both the Presbyterian and Independent funds; but upon my telling them that I did not chuse to have any thing to do with the Independents,

and

and asking them whether they were able to make up the salary they promised me (which was forty pounds per annum) without any aid from the latter fund, they assured me they could. I soon, however, found that they deceived themselves; for the most that I ever received from them was in the proportion of about thirty pounds per annum, when the expence of my board exceeded twenty pounds.

Notwithstanding this, every thing else for the first half year appeared very promising, and I was happy in the success of my schemes for promoting the interest of religion in the place. I catechised the children, though there were not many, using Dr. Watt's Catechism; and I opened my lectures on the theory of religion from the *institutes*, which I had composed at the academy, admitting all persons to attend them without distinction of sex or age; but in this I soon found that I had acted imprudently. A minister in that neighbourghood had been obliged to leave his place on account of Arianism, and though nothing had been said to me on the subject, and from the people so readily consenting to give up the independent fund, I thought they could not have much bigotry among them, I found that when I came to treat

treat of the *Unity of God*, merely as an article of religion, several of my audience were attentive to nothing but the soundness of my faith in the doctrine of the Trinity.

Also, though I had made it a rule to myself to introduce nothing that could lead to controversy into the pulpit; yet making no secret of my real opinions in conversation, it was soon found that I was an Arian. From the time of this discovery my hearers fell off apace, especially as the old minister took a decided part against me. The principal families, however, still continued with me; but notwithstanding this, my salary fell far short of thirty pounds per annum, and if it had not been for Dr. Benson and Dr. Kippis, especially the former, procuring me now and then an extraordinary five pounds from different charities, I do not believe that I could have subsisted. I shall always remember their kindness to me, at a time when I stood in so much need of it.

When I was in this situation, a neighbouring minister whose intimate friend had conformed to the church of England, talked to me on that subject. He himself, I perceived, had no great objection to it, but rejecting the proposal, as a thing that I could not think of, he never mentioned it to me any more.

To

To these difficulties, arising from the sentiments of my congregation, was added that of the failure of all remittances from my aunt, owing in part to the ill offices of my orthodox relations; but chiefly to her being exhausted by her liberality to others, and thinking that when I was settled in the world, I ought to be no longer burdensome to her. Together with me she had brought up a niece, who was almost her only companion, and being deformed, could not have subsisted without the greatest part, at least, of all she had to bequeath. In consequence of these circumstances, tho' my aunt had always assured me that, if I chose to be a minister, she would leave me independent of the profession, I was satisfied she was not able to perform her promise, and freely consented to her leaving all she had to my cousin; I had only a silver tankard as a token of her remembrance. She had spared no expence in my education, and that was doing more for me than giving me an estate.

But what contributed greatly to my distress was the *impediment in my speech*, which had increased so much as to make preaching very painful, and took from me all chance of recommending myself to any better place. In this state, hearing of the proposal of one

one Mr. Angier to cure all defects of speech, I prevailed upon my aunt to enable me to pay his price, which was twenty guineas; and this was the first occasion of my visiting London. Accordingly, I attended him about a month, taking an oath not to reveal his method, and I received some temporary benefit; but soon relapsed again, and spoke worse than ever. When I went to London it was in company with Mr. Smithson, who was settled at Harlestown in Norfolk. By him I was introduced to Dr. Kippis and Dr. Benson, and by the latter to Dr. Price, but not at that time.

At Needham I felt the effect of a low despised situation, together with that arising from the want of popular talents. There were several vacancies in congregations in that neighbourhood, where my sentiments would have been no objection to me, but I was never thought of. Even my next neighbours, whose sentiments were as free as my own, and known to be so, declined making exchanges with me, which, when I left that part of the country, he acknowledged was not owing to any dislike his people had to me as heretical, but for other reasons, the more genteel part of his hearers always absenting themselves when they heard

heard I was to preach for him. But visiting that country some years afterwards, when I had raised myself to some degree of notice in the world, and being invited to preach in that very pulpit, the same people crowded to hear me, though my elocution was not much improved, and they professed to admire one of the same discourses they had formerly despised.

Notwithstanding these unfavorable circumstances, I was far from being unhappy at Needham. I was boarded in a family from which I received much satisfaction, I firmly believed that a wise providence was disposing every thing for the best, and I applied with great assiduity to my studies, which were classical, mathematical and theological. These required but few books. As to Experimental Philosophy, I had always cultivated an acquaintance with it, but I had not the means of prosecuting it.

With respect to miscellaneous reading, I was pretty well supplied by means of a library belonging to Mr. S. Alexander, a quaker,* to which I had the freest access.

---

* QUAKERS. That instances of liberality of sentiment with respect to religious opinion are frequently to be found among the Quakers there can be no doubt, but this is certainly no part of their character

as

access. Here it was that I was first acquainted with any person of that persuasion; and I must acknowledge my obligation to many of them in every future stage of my life. I have met with the noblest instances of liberality of sentiment and the truest generosity among them.

My studies however, were chiefly theological. Having left the academy, as I have observed, with a qualified belief of the doctrine of *Atonement*, such as is found in Mr. Tomkin's book, entitled, *Jesus Christ the*

---

as a Sect. Thomas Letchworth one of the most acute and ingenious of their preachers at Wandsworth near London, who from the writings of Dr. Priestley had become a firm convert to his Unitarian opinions, informed me that the expression of those opinions would be attended with certain expulsion from the Society. Very lately Hannah Bernard a female public friend who went from America to England, was prohibited from preaching by the Society, on account of her Unitarian doctrines.

Thomas Letchworth has been dead many years. In the short contest on the question of liberty and necessity which was occasioned by Toplady's life of Jerome Zanchius, he wrote a good defence of the doctrine of nrcessity signed Philaretes in answer to one from a disciple of Fletcher's of Madely, under the signature of Philaleutheros. There is a trifling account of him containing no information, by one William Matthews. T. C.

the Mediator, I was desirous of getting some more definite ideas on the subject, and with that view set myself to peruse the whole of the old and new testament, and to collect from them all the texts that appeared to me to have any relation to the subject. This I therefore did with the greatest care, arranging them under a great variety of heads. At the same time I did not fail to note such *general considerations* as occurred to me while I was thus employed. The consequence of this was, what I had no apprehension of when I began the work, viz. a full persuasion that the doctrine of Atonement, even in its most qualified sense, had no countenance either from scripture or reason. Satisfied of this, I proceeded to digest my observations into a regular treatise, which a friend of mine, without mentioning my name, submitted to the perusal of Dr. Fleming and Dr. Lardner. In consequence of this, I was urged by them to publish the greater part of what I had written. But being then about to leave Needham, I desired them to do whatever they thought proper with respect to it, and they published about half of my piece, under the title of the *Doctrine of Remission*, &c.

This circumstance introduced me to the acquaintance

ance of Dr. Lardner, whom I always called upon when I visited London. The last time I saw him, which was little more than a year before his death, having by letter requested him to give me some assistance with respect to the history I then prepared to write of the Corruptions of Christianity, and especially that article of it, he took down a large bundle of pamphlets, and turning them over at length shewing me my own; said, "This contains my sentiments on the subject." He had then forgot that I wrote it, and on my remarking it, he shook his head, and said that his memory began to fail him; and that he had taken me for another person. He was then at the advanced age of ninety one. This anecdote is trifling in itself, but it relates to a great and good man,

I have observed that Dr. Lardner only wished to publish a part of the treatise which my friend put into his hand. The other part of it contained remarks on the reasoning of the apostle of Paul, which he could not by any means approve. They were, therefore, omitted in this publication. But the attention which I gave to the writings of this apostle at the time that I examined them, in order to collect

passa-

passages relating to the doctrine of atonement, satisfied me that his reasoning was in many places far from being conclusive; and in a separate work I examined every passage in which his reasoning appeared to me to be defective, or his conclusions ill supported; and I thought them to be pretty numerous.

At that time I had not read any commentary on the scriptures, except that of Mr. Henry when I was young. However, seeing so much reason to be dissatisfied with the apostle Paul as a reasoner, I read *Dr. Taylor's paraphrase on the epistle to the Romans;* but it gave me no sort of satisfaction; and his general *Key to the epistles* still less. I therefore at that time wrote some remarks on it, which were a long time after published in the *Theological Repository* Vol. 4.

As I found that Dr. Lardner did not at all relish any of my observations on the imperfections of the sacred writers, I did not put this treatise into his hands; but I shewed it to some of my younger friends, and also to Dr. Kippis; and he advised me to publish it under the character of an unbeliever, in order to draw the more attention to it. This I

did not chuse, having always had a great aversion to assume any character that was not my own, even so much as disputing for the sake of discovering truth. I cannot ever say that I was quite reconciled to the idea of writing to a fictitious person, as in my *letters to a philosophical unbeliever*, though nothing can be more innocent, or sometimes more proper; our Saviour's parables implying a much greater departure from strict truth than those letters do. I therefore wrote the book with great freedom, indeed, but as a christian, and an admirer of the apostle Paul, as I always was in other respects.

When I was at Nantwich I sent this treatise to the press; but when nine sheets were printed off, Dr. Kippis dissuaded me from proceeding, or from publishing any thing of the kind, until I should be more known, and my character better established. I therefore desisted; but when I opened the theological Repository, I inserted in that work every thing that was of much consequence in the other, in order to its being submitted to the examination of learned christians. Accordingly these communications were particularly animadverted upon by Mr. Willet of Newcastle, under the signature of W. W. But I can-

I cannot say that his remarks gave me much satisfaction.

When I was at Needham I likewise drew up a treatise on the doctrine of *divine influence*, having collected a number of texts for that purpose, and arranged them under proper heads, as I had done those relating to the doctrine of atonement. But I published nothing relating to it until I made use of some of the observations in my *sermon* on that subject, delivered at an ordination, and published many years afterwards.

While I was in this retired situation, I had, in consequence of much pains and thought, become persuaded of the falsity of the doctrine of atonement, of the inspiration of the authors of the books of scripture as writers, and of all idea of supernatural influence, except for the purpose of miracles. But I was still an Arian, having never turned my attention to the Socinian doctrine, and contenting myself with seeing the absurdity of the trinitarian system.

Another task that I imposed on myself, and in part executed at Needham, was an accurate comparison of the Hebrew text of the hagiographa and the prophets with the version of the Septuagint, noting

all the variations, &c. This I had about half finished before I left that place; and I never resumed it, except to do that occasionally for particular passages, which I then began, though with many disadvantages, with a design to go through the whole. I had no Polyglot Bible, and could have little help from the labours of others.

The most learned of my acquaintance in this situation was Mr. Scott of Ipswich, who was well versed in the Oriental languages, especially the Arabic. But though he was far from being Calvinistical, he gave me no encouragement in the very free enquiries which I then entered upon. Being excluded from all communication with the more orthodox ministers in that part of the country, all my acquaintance among the dissenting ministers, besides Mr. Scott, were Mr. Taylor of Stow-market, Mr. Dickinson of Diss, and Mr. Smithson of Harlestone; and it is rather remarkable, that we all left that country in the course of the same year; Mr. Taylor removing to Carter's lane in London, Mr. Dickinson to Sheffield, and Mr. Smithson to Nottingham.

But I was very happy in a great degree of intimacy with Mr. Chauvet, the rector of Stow-market.

He

He was descended of French parents; and I think was not born in England. Whilst he lived we were never long without seeing each other. But he was subject to great unevenness of spirits, sometimes the most chearful man living, and at other times most deplorably low. In one of these fits he at length put an end to his life. I heard afterwards that he had at one time been confined for insanity, and had even made the same attempt some time before.

Like most other young men of a liberal education, I had conceived a great aversion to the business of a schoolmaster, and had often said, that I would have recourse to any thing else for a maintenance in preference to it. But having no other resource, I was at length compelled by necessity to make some attempt in that way; and for this purpose I printed and distributed *Proposals*, but without any effect. Not that I was thought to be unqualified for this employment, but because I was not orthodox. I had proposed to teach the classics, mathematics, &c. for half a guinea per quarter, and to board the pupils in the house with myself for twelve guineas per annum.

Finding this scheme not to answer, I proposed to

give lectures to grown persons in such branches of science as I could conveniently procure the means of doing; and I began with reading about twelve lectures on the *use of the Globes*, at half a guinea. I had one course of ten hearers, which did something more than pay for my globes; and I should have proceeded in this way, adding to my apparatus as I should have been able to afford it, if I had not left that place, which was in the following manner.

My situation being well known to my friends, Mr. Gill, a distant relation by my mother, who had taken much notice of me before I went to the academy, and had often lent me books, procured me an invitation to preach as a candidate at Sheffield, on the resignation of Mr. Wadsworth. Accordingly I did preach as a candidate, but though my opinions were no objection to me there, I was not approved. But Mr. Haynes, the other minister, perceiving that I had no chance at Sheffield, told me that he could recommend me to a congregation at Nantwich in Cheshire, where he himself had been settled; and as it was at a great distance from Needham, he would endeavour to procure me an invitation to preach there for a year certain. This he did, and I gladly accepting of it, removed

ved from Needham, going thence to London by sea, to save expence. This was in 1758, after having been at Needham just three years.*

At

* It is about sixty miles from Needham to London, so that the roads must have been in a bad state to render a water passage more eligible than by land. The first turnpike in England was authorized by an act of Ch. II. 1663 but the system was not adopted with spirit until near the middle of the last century. The manufacturing inland towns of Great Britain, such as Manchester, Leeds, Halifax, &c. chiefly carried on their business through the medium of travelling pedlars, and afterwards on pack horses. The journey in this manner from Manchester to London occupied a fortnight; and it was not unusual for a trader going the first time himself on this expedition to take the prudent precaution of making his will. At present the mail stage performs the journey in about a day and a half. In the beginning of this century (as Dr. Aikin in his history of Manchester observes) it was thought a most arduous undertaking to make a public road over the hills that separate Yorkshire and Lancashire; now, they are pierced by three navigable canals. Indeed the prosperous state of British manufactures and commerce, seems to have originated and progressed with the adoption of turnpikes and canals. They facilitate not merely the carriage and interchange of heavy materials necessary to machinery, but they make personal intercourse cheap, speedy and universal; they thus furnish the means of seeing and communicating improvements, and of observing in what way one manufacture may be brought to bear upon another widely different in its kind, We are not yet sufficiently aware of their importance in America, even to the interests of agriculture. T. C.

At Nantwich I found a good natured friendly people, with whom I lived three years very happily; and in this situation I heard nothing of those controversies which had been the topics of almost every conversation in Suffolk; and the consequence was that I gave little attention to them myself. Indeed it was hardly in my power to do it, on account of my engagement with a school, which I was soon able to establish, and to which I gave almost all my attention; and in this employment, contrary to my expectations, I found the greatest satisfaction, notwithstanding the confinement and labour attending it.

My school generally consisted of about thirty boys, and I had a separate room for about half a dozen young ladies. Thus I was employed from seven in the morning untill four in the afternoon, without any interval except one hour for dinner, and I never gave a holiday on any consideration, the red letter days, as they are called, excepted. Immediately after this employment in my own school rooms, I went to teach in the family of Mr. Tomkinson, an eminent attorney, and a man of large fortune, whose recommendation was of the greatest service to me; and here I continued until seven in the evening. I had therefore but

little

little leisure for reading or for improving myself in any way, except what necessarily arose from my employment.

Being engaged in the business of a schoolmaster, I made it my study to regulate it in the best manner, and I think I may say with truth, that in no school was more business done, or with more satisfaction, either to the master, or the scholars, than in this of mine. Many of my scholars are probably living and I am confident that they will say that this is no vain boast.

At Needham I was barely able with the greatest economy to keep out of debt (though this I always made a point of doing at all events) but at Nantwich my school soon enabled me to purchase a few books, and some philosophical instruments, as a small air pump, an electrical machine, &c. These I taught my scholars in the highest class to keep in order, and make use of, and by entertaining their parents and friends with experiments, in which the scholars were generally the operators, and sometimes the lecturers too, I considerably extended the reputation of my school; though I had no other object originally than gratifying my own taste. I had no leisure, however, to make

any

any original experiments until many years after this time.

As there were few children in the congregation (which did not consist of more than sixty persons, and a great proportion of them travelling scotchmen) there was no scope for exertion with respect to my duty as a minister. I therefore contented myself with giving the people what assistance I could at their own houses, where there were young persons; and I added very few sermons to those which I had composed at Needham, where I never failed to make at least one every week.

Being boarded with Mr. Eddowes, a very sociable and sensible man, and at the same time the person of the greatest property in the congregation, and who was fond of music, I was induced to learn to play a little on the English flute, as the easiest instrument; and though I was never a proficient in it, my playing contributed more or less to my amusement many years of my life. I would recommend the knowledge and practice of music to all studious persons; and it will be better for them, if, like myself, they should have no very fine ear, or exquisite taste; as by this means they will be more easily pleased,

pleased, and be less apt to be offended when the performances they hear are but indifferent.

At Nantwich I had hardly any literary acquaintance besides Mr. Brereton, a clergyman in the neighbourhood, who had a taste for astronomy, philosophy, and literature in general. I often slept at his house, in a room to which he gave my name. But his conduct afterwards was unworthy of his profession.

Of dissenting ministers I saw most of Mr. Keay of Whitchurch, and Dr. Harwood, who lived and had a school at Congleton, preaching alternately at Leek and Wheelock, the latter place about ten miles from Nantwich. Being both of us schoolmasters, and having in some respect the same pursuits, we made exchanges for the sake of spending a Sunday evening together every six weeks in the summer time. He was a good classical scholar, and a very entertaining companion.

In my congregation there was (out of the house in which I was boarded) hardly more than one family in which I could spend a leisure hour with much satisfaction, and that was Mr. James Caldwall's, a scotchman. Indeed, several of the travelling

ling Scotchmen who frequented the place, but made no long stay at any time, were men of very good sense; and what I thought extraordinary, not one of them was at all Calvinistical.

My engagements in teaching allowed me but little time for composing any thing while I was at Nantwich. There, however, I recomposed my *Observations on the character and reasoning of the apostle Paul*, as mentioned before. For the use of my school I then wrote an *English grammer** on a new plan, leaving out all such technical terms as were borrowed from other languages, and had no corresponding modifications in ours, as the future tense, &c. and to this I afterwards subjoined *Observations for the use of proficients in the language*,‖ from the notes which I collected at Warrington; where, being tutor in the languages and Belles Letters, I gave particular attention to the English language, and intended

* Printed in 1761.

‖ Printed in 1772 at London. His lectures on the Theory of Language and Universal Grammar were printed the same year at Warrington. David Hume was made sensible of the Gallicisms and Peculiarities of his stile by reading this Grammar; He acknowledged it to Mr. Griffith the Bookseller, who mentioned it to my father.

tended to have composed a large treatise on the structure and present state of it. But dropping the scheme in another situation, I lately gave such parts of my collection as I had made no use of to Mr. Herbert Croft of Oxford, on his communicating to me his design of compiling a Dictionary and Grammar of our language.

The academy at Warrington was instituted when I was at Needham, and Mr. Clark knowing the attention that I had given to the learned languages when I was at Daventry, had then joined with Dr. Benson and Dr. Taylor in recommending me as tutor in the languages. But Mr. (afterward Dr.) Aikin, whose qualifications were superior to mine, was justly prefered to me. However, on the death of Dr. Taylor, and the advancement of Mr. Aikin to be tutor in divinity, I was invited to succeed him. This I accepted, though my school promised to be more gainful to me. But my employment at Warrington would be more liberal, and less painful. It was also a means of extending my connections. But, as I told the persons who brought me the invitation, viz. Mr. Seddon and Mr. Holland of Bolton, I should have preferred the office of teaching the mathematics and natural

natural philosophy, for which I had at that time a great predilection.

My removal to Warrington was in September, 1761, after a residence of just three years at Nantwich. In this new situation I continued six years, and in the second year I married a daughter of Mr. Isaac Wilkinson, an Ironmaster near Wrexham in Wales, with whose family I had became acquainted in consequence of having the youngest son, William, at my school at Nantwich. This proved a very suitable and happy connection, my wife being a woman of an excellent understanding, much improved by reading, of great fortitude and strength of mind, and of a temper in the highest degree affectionate and generous; feeling strongly for others, and little for herself. Also, greatly excelling in every thing relating to household affairs, she entirely relieved me of all concern of that kind, which allowed me to give all my time to the prosecution of my studies, and the other duties of my station. And though, in consequence of her father becoming impoverished, and wholly dependent on his children, in the latter part of his life, I had little fortune with her, I unexpectedly found a great resource in her two brothers, who had become

wealthy,

wealthy, especially the elder of them. At Warrington I had a daughter, Sarah, who was afterwards married to Mr. William Finch of Heath forge near Dudley.

Though at the time of my removal to Warrington I had no particular fondness for the studies relating to my profession then, I applied to them with great assiduity; and besides composing courses of *Lectures on the theory of Language*, and on *Oratory and Criticism*, on which my predecessor had lectured, I introduced lectures on *history and general policy*, on the *laws and constitutions of England*, and on the *history of England*. This I did in consequence of observing that, though most of our pupils were young men designed for situations in civil and active life, every article in the plan of their education was adapted to the learned professions.

In order to recommend such studies as I introduced, I composed an *essay on a course of liberal education for civil and active life*, with *syllabuses* of my three new courses of lectures; and Dr. Brown having just then published a plan of education, in which he recommended it to be undertaken by the state, I added some *remarks on his treatise*, shewing how inimical

mical it was to liberty, and the natural rights of parents. This leading me to consider the subject of civil and political liberty, I published my thoughts on it, in an *essay on government*, which in a second edition I much enlarged, including in it what I wrote in answer to Dr. Balguy, on church authority, as well as my animadversions on Dr. Brown.

My *Lectures on the theory of language and universal grammar* were printed for the use of the students, but they were not published. Those on *Oratory and Criticism* I published when I was with Lord Shelburne, and those on *History and general policy* are now printed, and about to be published.*

Finding no public exercises at Warrington, I introduced them there, so that afterwards every Saturday the tutors, all the students, and often strangers, were assembled to hear English and Latin compositions, and sometimes to hear the delivery of speeches, and the exhibition of scenes in plays. It was my province to teach elocution, and also Logic, and Hebrew. The first of these I retained; but after a year

* This work has been reprinted in Philadelphia with additions, particularly of a chapter on the government of the United States.

year or two I exchanged the two last articles with Dr. Aikin for the civil law, and one year I gave a course of lectures in anatomy.

With a view to lead the students to a facility in writing English, I encouraged them to write in verse. This I did not with any design to make them poets, but to give them a greater facility in writing prose, and this method I would recommend to all tutors. I was myself far from having any pretension to the character of a poet; but in the early part of my life I was a great versifier, and this, I believe, as well as my custom of writing after preachers, mentioned before, contributed to the ease with which I always wrote prose. Mrs. Barbauld has told me that it was the perusal of some verses of mine that first induced her to write any thing in verse, so that this country is in some measure indebted to me for one of the best poets it can boast of. Several of her first poems were written when she was in my house, on occasions that occurred while she was there.

It was while I was at Warrington that I published my *Chart of Biography*, though I had begun to construct it at Nantwich. Lord Willoughby of Parham, who lived in Lancashire, being pleased with the idea

of it, I, with his consent, inscribed it to him; but he died before the publication of it: The *Chart of History*, corresponding to it, I drew up some time after at Leeds.

I was in this situation when, going to London,* and being introduced to Dr. Price, Mr. Canton, Dr. Watson, (the Physician,) and Dr. Franklin, I was led to attend to the subject of experimental philosophy more than I had done before; and having composed all the Lectures I had occasion to deliver and finding myself at liberty for any undertaking, I mentioned to Dr. Franklin an idea that had occurred to me of writing the history of discoveries in Electricity, which had been his favourite study. This I told him might be an useful work, and that I would willingly undertake it, provided I could be furnished with the books necessary for the purpose. This he readily undertook, and my other friends assisting him in it, I set about the work, without having the least

* He always spent one month in every year in London, which was of great use to him. He saw and heard a great deal. He generally made additions to his library and his chemical apparatus. A new turn was frequently given to his ideas. New and useful acquaintances were formed, and old ones confirmed.

least idea of doing any thing more than writing a distinct and methodical account of all that had been done by others. Having, however, a pretty good machine, I was led, in the course of my writing the history, to endeavour to ascertain several facts which were disputed; and this led me by degrees into a large field of original experiments, in which I spared no expence that I could possibly furnish.

These experiments employed a great proportion of my leisure time; and yet before the complete expiration of the year in which I gave the plan of my work to Dr. Franklin, I sent him a copy of it in print. In the same year five hours of every day were employed in lectures, public or private, and one two months vacation I spent chiefly at Bristol, on a visit to my father-in-law.

This I do not mention as a subject of boasting. For many persons have done more in the same time; but as an answer to those who have objected to some of my later writings, as hasty performances. For none of my publications were better received than this *History of Electricity*, which was the most hasty of them all. However, whether my publications have taken up more or less time, I am confident that

more would not have contributed to their perfection, in any essential particular; and about anything farther I have never been very solicitous. My object was not to acquire the character of a fine writer, but of an useful one. I can also truly say that gain was never the chief object of any of my publications. Several of them were written with the prospect of certain loss.

During the course of my electrical experiments in this year I kept up a constant correspondence with Dr. Franklin, and the rest of my philosophical friends in London; and my letters circulated among them all, as also every part of my History as it was transcribed. This correspondence would have made a considerable volume, and it took up much time; but it was of great use with respect to the accuracy of my experiments, and the perfection of my work.

After the publication of my Chart of Biography, Dr. Percival of Manchester, then a student at Edinburgh, procured me the title of Doctor of laws from that university; and not long after my new experiments in electricity were the means of introducing me into the Royal Society, with the recommendation of Dr. Franklin, Dr. Watson, Mr. Canton, and Dr. Price.

In

In the whole time of my being at Warrington I was singularly happy in the society of my fellow tutors,* and of Mr. Seddon, the minister of the place. We drank tea together every Saturday, and our conversation was equally instructive and pleasing. I often thought it not a little extraordinary, that four persons, who had no previous knowledge of each other, should have been brought to unite in conducting such a scheme as this, and all be zealous necessarians, as we were. We were likewise all Arians, and the only subject of much consequence on which we differed respected the doctrine of atonement, concerning which Dr. Aikin held some obscure notions. Accordingly, this was frequently the topic of our friendly conversations. The only Socinian in the neighbourhood was Mr. Seddon of Manchester; and we all wondered at him. But then we never entered into any particular examination of the subject.

Receiving some of the pupils into my own house, I was

* At Warrington he had for colleagues and successors, Dr. John Taylor, author of the Hebrew Concordance and of several other works, on Original Sin, Atonement, &c. Dr. Aikin the Elder, Dr. Reinhold Forster the Naturalist and traveller, Dr. Enfield and Mr. Walker.

I was by this means led to form some valuable friendships, but especially with Mr. Samuel Vaughan, a friendship which has continued hitherto, has in a manner connected our families, and will, I doubt not, continue through life. The two eldest of his sons were boarded with me.

The tutors having sufficient society among themselves, we had not much acquaintance out of the academy. Sometimes, however, I made an excursion to the towns in the neighbourhood. At Liverpool I was always received by Mr. Bentley, afterwards partner with Mr. Wedgwood, a man of excellent taste improved understanding, and a good disposition, but an unbeliever in christianity, which was therefore often the subject of our conversation. He was then a widower, and we generally, and contrary to my usual custom, sat up late. At Manchester I was always the guest of Mr. Potter, whose son Thomas was boarded with me. He was one of the worthiest men that ever lived. At Chowbent I was much acquainted with Mr. Mort, a man equally distinguished by his chearfulness and liberality of sentiment.

Of the ministers in the neighbourhood, I recollect with

with much satisfaction the interviews I had with Mr. Godwin of Gataker, Mr. Holland of Bolton, and Dr. Enfield of Liverpool, afterwards tutor at Warrington.

Though all the tutors in my time lived in the most perfect harmony, though we all exerted ourselves to the utmost, and there was no complaint of want of discipline, the academy did not flourish. There had been an unhappy difference between Dr. Taylor and the trustees, in consequence of which all his friends, who were numerous, were our enemies; and too many of the subscribers, being probably weary of the subscription, were willing to lay hold of any pretence for dropping it, and of justifying their conduct afterwards.

It is possible that in time we might have overcome the prejudices we laboured under, but there being no prospect of things being any better, and my wife having very bad health, on her account chiefly I wished for a removal, though nothing could be more agreeable to me at the time than the whole of my employment, and all the laborious part of it was over. The terms also on which we took boarders, viz. 15 £. per annum, and my salary being only

100 £. per annum with a house, it was not possible, even living with the greatest frugality, to make any provision for a family. I was there six years, most laboriously employed, for nothing more than a bare subsistence. I therefore listened to an invitation to take the charge of the congregation of Mill-hill chapel at Leeds, where I was pretty well known, and thither I removed in September 1767.

Though while I was at Warrington it was no part of my duty to preach, I had from choice continued the practice; and wishing to keep up the character of a dissenting minister, I chose to be ordained while I was there; and though I was far from having conquered my tendency to stammer, and probably never shall be able to do it effectually, I had, by taking much pains, improved my pronunciation some time before I left Nantwich; where for the two first years this impediment had increased so much, that I once informed the people, that I must give up the business of preaching, and confine myself to my school. However, by making a practice of reading very loud and very slow every day, I at length succeeded in getting in some measure the better of this defect, but I am still obliged occasionally to have recourse to the same expedient.

At

At Leeds I continued six years very happy with a liberal, friendly, and harmonious congregation, to whom my services (of which I was not sparing) were very acceptable. Here I had no unreasonable prejudices to contend with, so that I had full scope for every kind of exertion; and I can truly say that I always considered the office of a christian minister as the most honourable of any upon earth, and in the studies proper to it I always took the greatest pleasure.

In this situation I naturally resumed my application to speculative theology, which had occupied me at Needham, and which had been interrupted by the business of teaching at Nantwich and Warrington. By reading with care Dr. *Lardner's letter on the logos*, I became what is called a Socinian soon after my settlement at Leeds; and after giving the closest attention to the subject, I have seen more and more reason to be satisfied with that opinion to this day, and likewise to be more impressed with the idea of its importance.

On reading Mr. *Mann's Dissertation on the times of the birth and death of Christ*, I was convinced that he was right in his opinion of our Saviour's ministry

ministry having continued little more than one year, and on this plan I drew out a *Harmony of the gospels*, the outline of which I first published in the Theological Repository, and afterwards separately and at large, both in Greek and English, with Notes, and an occasional Paraphrase. In the same work I published my *Essay on the doctrine of Atonement*, improved from the tract published by Dr. Lardner, and also my animadversions on the reasoning of the apostle Paul.

The plan of this *Repository* occured to me on seeing some notes that Mr. Turner of Wakefield had drawn up on several passages of scripture, which I was concerned to think should be lost. He very much approved of my proposal of an occasional publication, for the purpose of preserving such original observations as could otherwise probably never see the light. Of this work I published three volumes while I was at Leeds, and he never failed to give me an article for every number of which they were composed.

Giving particular attention to the duties of my office, I wrote several tracts for the use of my congregation, as two *Catechisms*, an *Address to masters*

ters of families on the subject of family prayer, a *discourse on the Lord's Supper*, and on *Church discipline*, and *Institutes of Natural and Revealed religion.* Here I formed three classes of Catechumens, and took great pleasure in instructing them in the principles of religion. In this respect I hope my example has been of use in other congregations.

The first of my controversial treatises was written here in reply to some angry remarks on my discourse on the Lord's Supper by Mr. Venn, a clergyman in the neighbourhood. I also wrote remarks on Dr. *Balguy's sermon on Church authority*, and on some paragraphs in Judge *Blackstone's Commentaries* relating to the dissenters. To the two former no reply was made; but to the last the judge replied in a small pamphlet; on which I addressed a letter to him in the St. James's Chronicle. This controversy led me to print another pamphlet, entitled *The Principles and Conduct of the Dissenters with respect to the civil and ecclesiastical constitution of this country.* With the encouragement of Dr. Price and Dr. Kippis, I also wrote an *Address to Protestant Dissenters as such;* but without my name. Several of these pamphlets having been animadverted upon

upon by an anonymous acquaintance, who thought I had laid too much stress on the principles of the Dissenters, I wrote a defence of my conduct in *Letters addressed to him.*

The methodists being very numerous in Leeds, and many of the lower sort of my own hearers listening to them, I wrote an *Appeal to the serious professors of Christianity*, an *Illustration of particular texts*, and republished the *Trial of Elwall*, all in the cheapest manner possible. Those small tracts had a great effect in establishing my hearers in liberal principles of religion, and in a short time had a far more extensive influence than I could have imagined. By this time more than thirty thousand copies of the Appeal have been dispersed.

Besides these theoretical and controversial pieces, I wrote while I was at Leeds my *Essay on Government* mentioned before, my *English Grammar* enlarged, a *familiar introduction to the study of electricity*, a *treatise on perspective*, and my *Chart of History*, and also some anonymous pieces in favour of civil liberty during the persecution of Mr. Wilkes, the principal of which was *An Address to Dissenters on the subject of the difference with America*, which I wrote at

the

the request of Dr. Franklin, and Dr. Fothergil.

But nothing of a nature foreign to the duties of my profession engaged my attention while I was at Leeds so much as the prosecution of my experiments relating to *electricity*, and especially the doctrine of *air*. The last I was led into in consequence of inhabiting a house adjoining to a public brewery, where I at first amused myself with making experiments on the fixed air which I found ready made in the process of fermentation. When I removed from that house, I was under the necessity of making the fixed air for myself; and one experiment leading to another, as I have distinctly and faithfully noted in my various publications on the subject, I by degrees contrived a convenient apparatus for the purpose, but of the cheapest kind.

When I began these experiments I knew very little of *chemistry*, and had in a manner no idea on the subject before I attended a course of chemical lectures delivered in the academy at Warrington by Dr. Turner* of Liverpool. But I have often thought that

* DR. TURNER was a Physician at Liverpool: among his friends a professed Atheist. It was Dr. Turner who wrote the reply to Dr. Priestley's

that upon the whole, this circumstance was no disadvantage to me; as in this situation I was led to devise an apparatus, and processes of my own, adapted to my peculiar views. Whereas, if I had been previously accustomed to the usual chemical processes, I should not have so easily thought of any other; and without new modes of operation I should hardly have discovered any thing materially new.*

My

Priestley's letters to a philosophical unbeliever under the feigned name of Hammon. He was in his day a good practical chemist. I believe it was Dr. Turner who first invented, or at least brought to tolerable perfection, the art of copying prints upon glass, by striking off impressions with a coloured solution of silver and fixing them on the glass by baking on an iron plate in a heat sufficient to incorporate the solution with the glass. Some of them are very neatly performed, producing transparent copies in a bright yellow upon the clear glass.

Dr. Turner was not merely a whig but a republican. In a friendly debating society at Liverpool about the close of the American war, he observed in reply to a speaker who had been descanting on the honour Great Britain had gained during the reign of his present Majesty, that it was true, we had lost the *Terra firma* of the thirteen colonies in America, but we ought to be satisfied with having gained in return, by the generalship of Dr. Herschel, a terra incognita of much greater extent *in nubibus*. T. C.

* This necessary attention to economy also aided the simplicity of his apparatus, and was the means in some degree of improving it in this

My first publication on the subject of air was in 1772. It was a small pamphlet, on the method of impregnating water with fixed air; which being immediately translated into French, excited a great degree of attention to the subject, and this was much increased by the publication of my first paper of experiments in a large article of the Philosophical Transactions the year following, for which I received the gold medal of the society. My method of impregnating water with fixed air was considered at a meeting of the College of Physicians, before whom I made the experiments, and by them it was recommended to the Lords of the Admiral (by whom they had been summoned for the purpose) as likely to be of use in the sea scurvy.

The only person in Leeds who gave much attention to my experiments was Mr. Hay, a surgeon. He was a zealous methodist, and wrote answers to some of

---

this important respect. This plainness of his apparatus rendered his experiments easy to be repeated, and gave them accuracy. In this respect he was like his great Cotemporary Scheele, whose discoveries were made by means easy to be procured and at small expence. The French Chemists have adopted a practice quite the reverse. T. C.

of my theological tracts; but we always conversed with the greatest freedom on philosophical subjects, without mentioning any thing relating to theology. When I left Leeds, he begged of me the earthen trough in which I had made all my experiments on air while I was there. It was such an one as is there commonly used for washing linnen.

Having succeeded so well in the History of Electricity, I was induced to undertake the history of all the branches of experimental philosophy; and at Leeds I gave out proposals for that purpose, and published the *History of discoveries relating to vision light and colours*. This work, also, I believe I executed to general satisfaction, and being an undertaking of great expence, I was under the necessity of publishing it by subscription. The sale, however, was not such as to encourage me to proceed with a work of so much labour and expence; so that after purchasing a great number of books, to enable me to finish my undertaking, I was obliged to abandon it, and to apply wholly to original experiments.*

In writing the History of discoveries relating to vision,

* Many of the subscriptions remained unpaid.

vision, I was much assisted by Mr. Michell, the discoverer of the method of making artificial magnets. Living at Thornhill, not very far from Leeds, I frequently visited him, and was very happy in his society, as I also was in that of Mr. Smeaton, who lived still nearer to me. He made me a present of his excellent air pump, which I constantly use to this day. Having strongly recommended his construction of this instrument, it is now generally used; whereas before that hardly any had been made during the twenty years which had elapsed after the account that he had given of it in the Philosophical Transactions.

I was also instrumental in reviving the use of large electrical machines, and batteries, in electricity, the generality of electrical machines being little more than play things at the time that I began my experiments. The first very large electrical machine was made by Mr. Nairne in consequence of a request made to me by the Grand Duke of Tuscany, to get him the best machine that we could make in England. This, and another that he made for Mr. Vaughan, were constituted on a plan of my own. But afterwards Mr. Nairne made large machines on a more simple and improved construction; and in consideration of

the service which I had rendered him, he made me a present of a pretty large machine of the same kind.

The review of my history of electricity by Mr. Bewley, who was acquainted with Mr. Michell, was the means of opening a correspondence between us, which was the source of much satisfaction to me as long as he lived. I instantly communicated to him an account of every new experiment that I made, and, in return, was favoured with his remarks upon them. All that he published of his own were articles in the *Appendixes* to my volumes on air, all of which are ingenious and valuable. Always publishing in this manner, he used to call himself my *satellite*. There was a vein of pleasant wit and humour in all his correspondence, which added greatly to the value of it. His letters to me would have made several volumes, and mine to him still more. When he found himself dangerously ill, he made a point of paying me a visit before he died; and he made a journey from Norfolk to Birmingham, accompanied by Mrs. Bewley, for that purpose; and after spending about a week with me, he went to his friend Dr. Burney, and at his house he died.

While I was at Leeds a proposal was made to me

to

to accompany Captain Cook in his second voyage to the south seas. As the terms were very advantageous, I consented to it, and the heads of my congregation had agreed to keep an assistant to supply my place during my absence. But Mr. Banks informed me that I was objected to by some clergymen in the board of longitude, who had the direction of this business, on account of my religious principles; and presently after I heard that Dr. Forster, a person far better qualified for the purpose, had got the appointment. As I had barely acquiesced in the proposal, this was no disappointment to me, and I was much better employed at home, even with respect to my philosophical pursuits. My knowledge of natural history was not sufficient for the undertaking; but at that time I should by application have been able to supply my deficiency, though now I am sensible I could not do it.

At Leeds I was particularly happy in my intercourse with Mr. Turner of Wakefield, and occasionally, with Mr. Cappe of York, and Mr. Graham of Halifax. And here it was that, in consequence of a visit which in company with Mr. Turner I made to the Archdeacon Blackburne at Richmond (with

whom I had kept up a correspondence from the time that his son was under my care at Warrington) I first met with Mr. Lindsey, then of Catterick, and a correspondence and intimacy commenced, which has been the source of more real satisfaction to me than any other circumstance in my whole life. He soon discovered to me that he was uneasy in his situation, and had thoughts of quitting it. At first I was not forward to encourage him in it, but rather advised him to make what alteration he thought proper in the offices of the church, and leave it to his superiors to dismiss him if they chose. But his better judgment, and greater fortitude, led him to give up all connexion with the established church of his own accord.

This took place about the time of my leaving Leeds, and it was not until long after this that I was apprized of all the difficulties he had to struggle with before he could accomplish his purpose. But the opposition made to it by his nearest friends, and those who might have been expected to approve of the step that he took, and to have endeavoured to make it easy to him, was one of the greatest. Notwithstanding this he left Catterick, where he had lived

in

in affluence idolized by his parish, and went to London without any certain prospect; where he lived in two rooms of a ground floor, until by the assistance of his friends, he was able to pay for the use of the upper apartments, which the state of his health rendered necessary. In this humble situation have I passed some of the most pleasing hours of my life, when, in consequence of living with Lord Shelburne, I spent my winters in London.

On this occasion it was that my intimacy with Mr. Lindsey was much improved, and an entire concurrence in every thing that we thought to be for the interest of christianity gave fresh warmth to our friendship. To his society I owe much of my zeal for the doctrine of the divine unity, for which he made so great sacrifices, and in the defence of which he so much distinguished himself, so as to occasion a new æra in the history of religion in this country.

As we became more intimate, confiding in his better taste and judgment, and also in that of Mrs. Lindsey, a woman of the same spirit and views, and in all respects a help meet for him, I never chose to publish any thing of moment relating to Theology without consulting him; and hardly ever ventured

to insert any thing that they disapproved, being sensible that my disposition led to precipitancy, to which their coolness was a seasonable check.

At Leeds began my intercourse with Mr. Lee of Lincoln's Inn. He was a native of the place, and exactly one week older than myself. At that time he was particularly connected with the congregation, and before he was married spent his vacations with us. His friendship was a source of much greater satisfaction and advantage to me after I came to reside in London, and especially at the time of my leaving Lord Shelburne, when my prospects wore rather a cloudy aspect.

When I visited London, during my residence at Leeds, commenced my particular friendship for Dr. Price, to whom I had been introduced several years before by Dr. Benson; our first interview having been at Mr. Brownsword's at Newington, where they were members of a small literary society, in which they read various compositions. At that time Dr. Benson read a paper which afterwards made a section in his *Life of Christ*. For the most amiable simplicity of character, equalled only by that of Mr. Lindsey, a truly christian spirit, disinterested patriotism,

triotism, and true candour, no man in my opinion ever exceeded Dr. Price. His candour will appear the more extraordinary, considering his warm attachments to the theological sentiments which he embraced in very early life. I shall ever reflect upon our friendship as a circumstance highly honourable, as it was a source of peculiar satisfaction, to me.

I had two sons born to me at Leeds, Joseph and William, and though I was very happy there, I was tempted to leave it after continuing there six years, to go into the family of the Earl of Shelburne, now the Marquis of Lansdowne; he stipulating to give me 250 £. per annum, a house to live in, and a certainty for life in case of his death, or of my separation from him; whereas at Leeds my salary was only one hundred guineas per annum, and a house, which was not quite sufficient for the subsistence of my family, without a possibility of making a provision for them after my death.

I had been recommended to Lord Shelburne by Dr. Price, as a person qualified to be a literary companion to him. In this situation, my family being at Calne in Wiltshire, near to his Lordship's seat at Bowood, I continued seven years, spending the

summer with my family, and a great part of the winter in his Lordship's house in London. My office was nominally that of *librarian*, but I had little employment as such, besides arranging his books, taking a catalogue of them, and of his manuscripts, which were numerous, and making an index to his collection of private papers. In fact I was with him as a friend, and the second year made with him the tour of Flanders, Holland, and Germany, as far as Strasburgh; and after spending a month at Paris, returned to England. This was in the year 1774.

This little excursion made me more sensible than I should otherwise have been of the benefit of foreign travel, even without the advantage of much conversation with foreigners. The very sight of new countries, new buildings, new customs, &c. and the very hearing of an unintelligible new language, gives new ideas, and tends to enlarge the mind. To me this little time was extremely pleasing, especially as I saw every thing to the greatest advantage, and without any anxiety or trouble, and had an opportunity of seeing and conversing with every person of eminence wherever we came; the political characters by his Lordship's connections,

and

and the literary ones by my own. I was soon, however, tired of Paris, and chose to spend my evenings at the hotel, in company with a few literary friends. Fortunately for me, Mr. Magellan* being at Paris, at the same time, spent most of the evenings with me; and as I chose to return before his Lordship, he accompanied me to London, and made the journey very pleasing to me; he being used to the country, the language, and the manners of it, which I was not. He had seen much of the world,

---

* JOHN HYACINTH DE MAGELLAN a descendant of the famous Navigator Magellan, was a Portuguese Jesuit, but far more attached to Philosophy than Christianity. He was much employed by his rich and noble correspondents abroad to procure philosophical Instruments from the Artists of Great Britain. He was a good judge of these, and being of a mechanical turn as well as a man of Science, he improved their construction in many instances. He was member of and attendant on almost all the philosophical Clubs and Meetings in London, and was generally furnished with early intelligence of philosophical discoveries from the continent. On the 17th of September 1785 he made a donation of 200 guineas to the American philosophical Society, the interest whereof was to be appropriated annually as a premium for the most useful discoveries or improvements in navigation or natural philosophy, but to the exclusion of mere natural history. He died a few years ago, leaving Mr. Nicholson and the late Dr. Crawford his Executors. T. C.

world, and his conversation during our journey was particularly interesting to me. Indeed, in London, both before and after this time, I always found him very friendly, especially in every thing that related to my philosophical pursuits.

As I was sufficiently apprized of the fact, I did not wonder, as I otherwise should have done, to find all the philosophical persons to whom I was introduced at Paris unbelievers in christianity, and even professed Atheists. As I chose on all occasions to appear as a christian, I was told by some of them, that I was the only person they had ever met with, of whose understanding they had any opinion, who professed to believe christianity. But on interrogating them on the subject, I soon found that they had given no proper attention to it, and did not really know what christianity was. This was also the case with a great part of the company that I saw at Lord Shelburne's. But I hope that my always avowing myself to be a christian, and holding myself ready on all occasions to defend the genuine principles of it, was not without its use. Having conversed so much with unbelievers at home and abroad, I thought I should be able to combat their prejudices with some

advan-

advantage, and with this view I wrote, while I was with Lord Shelburne, the first part of my *Letters to a philosophical unbeliever*, in proof of the doctrines of a God and a providence, and to this I have added during my residence at Birmingham, a second part, in defence of the evidences of christianity. The first part being replied to by a person who called himself Mr. Hammon, I wrote a reply to his piece, which has hitherto remained unanswered. I am happy to find that this work of mine has done some good, and I hope that in due time it will do more. I can truly say that the greatest satisfaction I receive from the success of my philosophical pursuits, arises from the weight it may give to my attempts to defend christianity, and to free it from those corruptions which prevent its reception with philosophical and thinking persons, whose influence with the vulgar, and the unthinking, is very great.

With Lord Shelburne I saw a great variety of characters, but, of our neighbours in Wiltshire, the person I had the most frequent opportunity of seeing was Dr. Frampton, a clergyman, whose history may serve as a lesson to many. No man perhaps was ever better qualified to please in a convivial hour, or had

had greater talents for conversation and repartee; in consequence of which, though there were several things very disgusting about him, his society was much courted, and many promises of preferment were made to him. To these, notwithstanding his knowledge of the world, and of high life, he gave too much credit; so that he spared no expence to gratify his taste and appetite, until he was universally involved in debt; and though his friends made some efforts to relieve him, he was confined a year in the county prison at a time when his bodily infirmities required the greatest indulgences; and he obtained his release but a short time before his death on condition of his living on a scanty allowance; the income of his livings (amounting to more than 400 £. per annum) being in the hands of his creditors. Such was the end of a man who kept the table in a roar.

Dr. Frampton being a high churchman, he could not at first conceal his aversion to me, and endeavoured to do me some ill offices. But being a man of letters, and despising the clergy in his neighbourhood, he became at last much attached to me; and in his distresses was satisfied, I believe, that I was one of his most sincere friends. With some great defects he

had

had some considerable virtues, and uncommon abilities, which appeared more particularly in extempore speaking. He always preached without notes, and when, on some occasions, he composed his sermons, he could, if he chose to do it, repeat the whole *verbatim*. He frequently extemporized in verse, in a great variety of measures.

In Lord Shelburne's family was Lady Arabella Denny, who is well knowh by her extensive charities. She is (for she is still living) a woman of good understanding, and great piety. She had the care of his Lordship's two sons until they came under the care of Mr. Jervis, who was their tutor during my continuance in the family. His Lordship's younger son, who died suddenly, had made astonishing attainments both in knowledge and piety, while very young, far beyond any thing that I had an opportunity of observing in my life.

When I went to his Lordship, I had materials for one volume of *experiments on air*, which I soon after published, and inscribed to him; and before I left him I published three volumes more, and had materials for a fourth, which I published immediately on my settling in Birmingham. He encouraged me

in

in the prosecution of my philosophical enquiries, and allowed me 40 £. per annum for expences of that kind, and was pleased to see me make experiments to entertain his guests, and especially foreigners.

Notwithstanding the attention that I gave to philosophy in this situation, I did not discontinue my other studies, especially in theology and metaphysics. Here I wrote my *Miscellaneous Observations relating to education*, and published my *Lectures on Oratory and Criticism*, which I dedicated to Lord Fitzmaurice, Lord Shelburne's eldest son. Here also I published the third and last part of my *Institutes of Natural and Revealed religion;* and having in the Preface attacked the principles of Dr. Reid, Dr. Beattie, and Dr. Oswald, with respect to their doctrine of *Common Sense*, which they made to supercede all rational inquiry into the subject of religion, I was led to consider their system in a separate work, which, though written in a manner that I do not intirely approve, has, I hope upon the whole been of service to the cause of free inquiry and truth.*

In

* This reply of Dr. Priestley to the Scotch Doctors, though not written

In the preface I had expressed my belief of the doctrine of *Philosophical Necessity*, but without any design to pursue the subject, and also my great admiration of Dr. Hartley's theory of the human mind, as indeed I had taken many opportunities of doing before. This led me to publish that part of his *observations on man* which related to the doctrine of association of ideas, detached from the doctrine of vibrations, prefixing *three dissertations*, explanatory of his general system. In one of these I expressed some doubt of the immateriality of the sentient principle in man; and the outcry that was made on what I casually expressed on that subject can hardly be imagined. In all the newspapers, and most of the periodical publications, I was represented as an unbeliever in revelation, and no better than an Atheist.

This

written in a manner that his maturer reflection approved, compleatly set at rest the question of Common Sense as denoting the intuitive evidence of a class of moral and religious propositions capable of satisfactory proof, or of high probability from considerations *ab extra*. But Dr. Reid ought hardly to be classed with coadjutors so inferior as the Drs. Oswald and Beattie. The latter wrote something which he meant as a defence of the christian religion; but such defenders of christianity as Dr. Beattie and Soame Jenyns, are well calculated to bring it into contempt with men of reason and reflection. T. C.

This led me to give the closest attention to the subject, and the consequence was the firmest persuasion that man is wholly material, and that our only prospect of immortality is from the christian doctrine of a resurrection. I therefore digested my thoughts on the subject, and published my *Disquisitions relating to matter and spirit*, also the subjects of *Socinianism* and *necessity* being nearly connected with the doctrine of the materiality of man, I advanced several considerations from the state of opinions in antient times in favour of the former; and in a separate volume discussed more at large what related to the latter, dedicating the first volume of this work to Mr. Graham, and the second to Dr. Jebb.

It being probable that this publication would be unpopular, and might be a means of bringing odium on my patron, several attempts were made by his friends, though none by himself, to dissuade me from persisting in it. But being, as I thought, engaged in the cause of important truth, I proceeded without regard to any consequences, assuring them that this publication should not be injurious to his Lordship.

In order, however, to proceed with the greatest caution,

caution, in a business of such moment, I desired some of my learned friends, and especially Dr. Price, to peruse the work before it was published; and the remarks that he made upon it led to a free and friendly discussion of the several subjects of it, which we afterwards published jointly; and it remains a proof of the possibility of discussing subjects mutually considered as of the greatest importance, with the most perfect good temper, and without the least diminution of friendship. This work I dedicated to our common friend Mr. Lee.

In this situation I published my *Harmony of the gospels*, on the idea of the public ministry of Jesus having continued little more than one year, a scheme which I first proposed in the Theological Repository; and the Bishop of Waterford having in his *Harmony* published a defence of the common hypothesis, viz. that of its having been three years, I addressed a *letter to him* on the subject, and to this he made a reply in a separate work. The controversy proceeded to several publications on both sides, in the most amicable manner, and the last *Postscript* was published jointly by us both. Though my side of the question was without any advocates that I know of,

and had only been adopted by Mr. Mann, who seemed to have had no followers, there are few persons, I believe, who have attended to our discussion of the subject, who are not satisfied that I have sufficiently proved what I had advanced. This controversy was not finished until after my removal to Birmingham.

Reflecting on the time that I spent with Lord Shelburne, being as a guest in the family, I can truly say that I was not at all fascinated with that mode of life. Instead of looking back upon it with regret, one of the greatest subjects of my present thankfulness is the change of that situation for the one in which I am now placed; and yet I was far from being unhappy there, much less so than those who are born to such a state, and pass all their lives in it. These are generally unhappy from the want of *necessary* employment; on which account chiefly there appears to be much more happiness in the middle classes of life, who are above the fear of want, and yet have a sufficient motive for a constant exertion of their faculties; and who have always some other object besides amusement.

I used to make no scruple of maintaining, that there

there is not only most virtue, and most happiness, but even most true politeness in the middle classes of life. For in proportion as men pass more of their time in the society of their equals, they get a better established habit of governing their tempers; they attend more to the feelings of others, and are more disposed to accommodate themselves to them. On the other hand, the passions of persons in higher life, having been less controlled, are more apt to be inflamed; the idea of their rank and superiority to others seldom quits them; and though they are in the habit of concealing their feelings, and disguising their passions, it is not always so well done, but that persons of ordinary discernment may perceive what they inwardly suffer. On this account, they are really intitled to compassion, it being the almost unavoidable consequence of their education and mode of life. But when the mind is not hurt in such a situation, when a person born to affluence can lose sight of himself, and truly feel and act for others, the character is so godlike, as shews that this inequality of condition is not without its use. Like the general discipline of life, it is for the present lost no

on the great mass, but on a few it produces what no other state of things could do.*

The

* The account here given of Dr. Priestley's connection with Lord Shelburne must be gratifying to every friend of science and literature, notwithstanding the subsequent separation. To such persons the character of a nobleman who like Lord Shelburne, devotes so much of his time, and so much of his income to the pursuits of knowledge, and the encouragement of those who eminently contribute to enlighten mankind, cannot but be interesting. Had he behaved dishonourably or disrespectfully to a man of Dr. Priestley's high station in the literary world, it would have been an argument that science and literature were ineffectual to soften the pride of titled opulence and hereditary rank, But Ovid has observed justly, *(ingenuas didicisse fideliter Artes, emollit mores nec sinit esse feros.)*

It is right to mention an anecdote highly honourable to Lord Shelburne, on the authority of Dr. Priestley. At the conclusion of the treaty of peace in 1783, negotiated by Lord Shelburne while he was in the ministry, a strong opposition was expected, particularly from his former coadjutors who soon after the death of Lord Rockingham had seceded from Lord Shelburne's administration. It was suggested to this nobleman, that it was customary for the minister for the time being to let it be understood among the mutes of the ministerial members, that they might expect the usual douceur for their votes on such an occasion. Some light might be thrown on the nature and quantum of this douceur, by the list of ministerial rewards distributed at the close of each session, as stated publicly to the house of Commons

The greatest part of the time that I spent with Lord Shelburne I passed with much satisfaction, his Lordship always behaving to me with uniform politeness, and his guests with respect. But about two years before I left him, I perceived evident marks of dissatisfaction, though I never understood the cause of it; and until that time he had been even lavish on all occasions in expressing his satisfaction in my society to our common friends. When I left him, I asked him whether he had any fault to find with my conduct, and he said *none*.

At length, however, he intimated to Dr. Price, that he wished to give me an establishment in Ireland, where he had large property. This gave me an opportunity of acquainting him, that if he chose to dissolve the connexion, it should be on the terms expressed in the writings which we mutually signed when

---

mons by the late Sir George Saville. Lord Shelburne without hesitation refused compliance; and declared that if his peace could not obtain the unbought approbation of the house, it might take its chance. The consequence was that although the address was carried in the Lords by 72 to 59 it was lost in the Commons by 224 to 208.

T. C.

when it was formed, in consequence of which I should be entitled to an annuity of an hundred and fifty pounds, and then I would provide for myself, and to this he readily acceded. He told Dr. Price that he wished our separation to be amicable, and I assured him that nothing should be wanting on my part to make it truly so. Accordingly, I expected that he would receive my visits when I should be occasionally in London, but he declined them.

However, when I had been some years settled at Birmingham, he sent an especial messenger, and common friend, to engage me again in his service, having, as that friend assured me, a deep sense of the loss of Lord Ashburton (Mr. Dunning) by death, and of Colonel Barre by his becoming almost blind, and his want of some able and faithful friend, such as he had experienced in me; with other expressions more flattering than those. I did not chuse, however, on any consideration, to leave the very eligible situation in which I now am, but expressed my readiness to do him any service in my power. His Lordship's enemies have insinuated that he was not punctual in the payment of my annuity; but the contrary is true: Hitherto nothing could have been

more

more punctual, and I have no reason to suppose that it will ever be otherwise.

At Calne I had another son born to me, whom, at Lord Shelburne's request, I called Henry.

It was at the time of my leaving Lord Shelburne that I found the great value of Mr. and Mrs. Lindsey's friendship, in such a manner as I certainly had no expectation of when our acquaintance commenced; especially by their introducing me to the notice of Mrs. Rayner, one of his hearers, and most zealous friends.

Notwithstanding my allowance from Lord Shelburne was larger than that which I had at Leeds, yet my family growing up, and my expences, on this and other accounts, increasing more than in proportion, I was barely able to support my removal. But my situation being intimated to Mrs. Rayner, besides smaller sums, with which she occasionally assisted me, she gave me an hundred guineas to defray the expence of my removal, and deposited with Mrs. Lindsey, which she soon after gave up to me, four hundred guineas, and to this day has never failed giving me every year marks of her friendship. Her's is, indeed, I seriously think, one of the first christian

characters that I was ever acquainted with, having a cultivated comprehensive mind, equal to any subject of theology or metaphysics, intrepid in the cause of truth, and most rationally pious.

Spending so much of my time in London was the means of increasing my intimacy with both Mr. Lindsey and Mr. Lee, our common friend; who amidst the bustle of politics, always preserved his attachment to theology, and the cause of truth. The Sunday I always spent with Mr. Lindsey, attending the service of his chapel, and sometimes officiating for him; and with him and Mrs. Lindsey I generally spent the evening of that day at Mr. Lee's who then admitted no other company, and seldom have I enjoyed society with more relish.

My winter's residence in London was the means of improving my acquaintance with Dr. Franklin. I was seldom many days without seeing him, and being members of the same club, we constantly returned together. The difference with America breaking out at this time, our conversation was chiefly of a political nature; and I can bear witness, that he was so far from promoting, as was generally supposed, that he took every method in his power to prevent a rupture

ture between the two countries. He urged so much the doctrine of forbearance, that for some time he was unpopular with the Americans on that account, as too much a friend to Great Britain. His advice to them was to bear every thing for the present, as they were sure in time to out grow all their grievances; as it could not be in the power of the mother country to oppress them long.

He dreaded the war, and often said that, if the difference should come to an open rupture, it would be a war of *ten years*, and he should not live to see the end of it. In reality the war lasted near eight years but he did live to see the happy termination of it. That the issue would be favorable to America, he never doubted. The English, he used to say, may take all our great towns, but that will not give them possession of the country. The last day that he spent in England, having given out that he should leave London the day before, we passed together, without any other company; and much of the time was employed in reading American newspapers, especially accounts of the reception which the *Boston port bill* met with in America; and as he read the addresses to the inhabitants of Boston from the places

in

in the neighbourhood, the tears trickled down his cheeks.*

It is much to be lamented, that a man of Dr. Franklin's general good character, and great influence, should have been an unbeliever in christianity, and also have done so much as he did to make others unbelievers. To me, however, he acknowledged that he had not given so much attention as he ought to have done to the evidences of christianity, and desired me to recommend to him a few treatises on the subject, such as I thought most deserving of his notice, but not of great length, promising to read them, and give me his sentiments on them. Accordingly, I recommended to him Hartley's evidences of christianity in his Observations on Man, and what I had then written on the subject in my Institutes of natural and revealed religion. But the American war breaking out soon after, I do not believe that he ever found himself sufficiently at leisure for the discussion. I have kept up a correspondence with him occasionally ever since, and three of his

* For two letters written by my father relating to Dr. Franklin and Mr Burke see appendix No. 6.

of his letters to me were, with his consent, published in his Miscellaneous Works, in quarto. The first of them, written immediately on his landing in America, is very striking.

About three years before the dissolution of my connection with Lord Shelburne, Dr. Fothergill, with whom I had always lived on terms of much intimacy, having observed, as he said, that many of my experiments had not been carried to their proper extent on account of the expence that would have attended them, proposed to me a subscription from himself and some of his friends, to supply me with whatever sums I should want for that purpose, and named a hundred pounds per annum. This large subscription I declined, lest the discovery of it (by the use that I should, of course, make of it) should give umbrage to Lord Shelburne, but I consented to accept of 40 £. per annum, which from that time he regularly paid me, from the contribution of himself, Sir Theodore Jansen, Mr. Constable, and Sir George Saville.

On my leaving Lord Shelburne, which was attended with the loss of one half of my income, Dr. Fothergill proposed an enlargement of my allowance

ance for my experiments, and likewise for my maintenance, without being under the necessity of giving my time to pupils, which I must otherwise have done. And, considering the generosity with which this voluntary offer was made by persons who could well afford it, and who thought me qualified to serve the interests of science, I thought it right to accept of it; and I preferred it to any pension from the court, offers of which were more than once made by persons who thought they could have procured one for me.

As it was my wish to do what might be in my power to shew my gratitude to my friends and benefactors that suggested the idea of writing these Memoirs, I shall subjoin a list of their names. Some of the subscriptions were made with a view to defray the expence of my experiments only; but the greater part of the subscribers were persons who were equally friends to my theological studies.

The persons who made me this regular annual allowance were Dr. Watson and his son, Mr. Wedgwood, Mr. Moseley, Mr. S. Salte, Mr. Jeffries, Mr. Radcliffe, Mr. Remington, Mr. Strutt of Derby, Mr. Shore, Mr. Reynolds of Paxton, Messrs. Galton

Galton, father and son, and the Rev. Mr. Simpson.

Besides the persons whose names appear in this list, as regular subscribers, there were other persons who, without chusing to be known as such, contributed no less to my support, and some considerably more.

My chief benefactress was Mrs. Rayner, and next to her Dr. Heberden, equally distinguished for his love of religious truth, and his zeal to promote science. Such also is the character of Mr. Tayleur of Shrewsbury, who has at different times remitted me considerable sums, chiefly to defray the expences incurred by my theological inquiries and publications.

Mr. Parker of Fleet street very generously supplied me with every instrument that I wanted in glass, particularly a capital burning lens,* sixteen inches in diameter. All his benefactions in this way would have amounted to a considerable sum. Mr. Wedgwood also, besides his annual benefaction, supplied me

* Though his sight was not much worse than before during the last ten years of his life it had been much injured by his experiments with the burning Lens of which he made much use in summer time.

me with every thing that I wanted made of pottery, such as retorts, tubes, &c. which the account of my experiments will shew to have been of great use to me.

On my removal to Birmingham commenced my intimacy with Mr. William Russell, whose public spirit, and zeal in every good cause, can hardly be exceeded. My obligations to him were various and constant, so as not to be estimated by sums of money. At his proposal I doubt not, some of the heads of the congregation made me a present of two hundred pounds, to assist me in my theological publications.

Mr. Lee shewed himself particularly my friend at the time that I left Lord Shelburne, assisting me in the difficulties with which I was then pressed, and continuing to befriend me afterwards by seasonable benefactions. By him it was hinted to me during the administration of Lord Rockingham, with whom he had great influence, that I might have a pension from the government, to assist in defraying the expence of my experiments. Another hint of the same kind was given me in the beginning of Mr. Pitt's administration by a Bishop in whose power it was to

have

have procured it from him. But in both cases I declined the overture, wishing to preserve myself independent of every thing connected with the court, and preferring the assistance of generous and opulent individuals, lovers of science, and also lovers of liberty. Without assistance I could not have carried on my experiments at all, except on a very small scale, and under great disadvantages.

Mr. Galton, before I had any opportunity of being personally acquainted with him, had, on the death of Dr. Fothergill, taken up his subscription. His son did the same, and the friendship of the latter has added much to the happiness of my situation here.* Seldom, if ever, have I known two persons of such cultivated minds, pleasing manners, and liberal dispositions, as he and Mrs. Galton. The latter had the greatest attachment imaginable to my wife.

Mr. Salte was zealous in promoting the subscriptions to my experiments, and moreover proposed to take one of my sons as an apprentice without any fee. But my brother-in-law making the same offer, I gave it the preference: Mr. Wedgwood, who has distin-

* Birmingham.

distinguished himself by his application to philosophical pursuits, as well as by his great success in the improvement of his manufactory, was very zealous to serve me, and urged me to accept of a much larger allowance than I chose.

The favours that I received from my two brothers-in-law deserve my most grateful acknowledgments. They acted the part of kind and generous relations, especially at the time when I most wanted assistance. It was in consequence of Mr. John Wilkinson's proposal, who wished to have us nearer to him, that, being undetermined where to settle, I fixed upon Birmingham, where he soon provided a house for me.

My apology for accepting of these large benefactions is, that besides the great expence of my philosophical and even my theological studies, and the education of three sons and a daughter, the reputation I had, justly or unjustly, acquired brought on me a train of expences not easy to describe, to avoid or to estimate; so that without so much as keeping a horse (which the kindness of Mr. Russel made unnecessary) the expence of housekeeping, &c. was more than double the amount of any regular income that I had.

I consider my settlement at Birmingham as the happiest event in my life, being highly favorable to every object I had in view, philosophical or theological. In the former respect I had the convenience of good workmen of every kind, and the society of persons eminent for their knowledge of chemistry, particularly Mr. Watt, Mr. Keir, and Dr. Withering. These with Mr. Boulton, and Dr. Darwin, who soon left us by removing from Litchfield to Derby, Mr. Galton, and afterwards Mr. Johnson of Kenelworth and myself dined together every month, calling ourselves the *lunar society*, because the time of our meeting was near the full moon.

With respect to theology, I had the society of Mr. Hawkes, Mr. Blyth, and Mr. Scholefield, and his assistant Mr. Coates, and, while he lived Mr. Palmer, before of Macclesfield. We met and drank tea together, every fortnight. At this meeting we read all the papers that were sent for the Theological Repository, which I revived some time after my coming hither, and in general our conversation was of the same cast as that with my fellow tutors at Warrington.

Within a quarter of a year of my coming to reside

at Birmingham, Mr. Hawkes resigned, and I had an unanimous invitation to succeed him, as colleague with Mr. Blyth, a man of a truly christian temper. The congregation we serve is the most liberal, I believe, of any in England; and to this freedom the unwearied labours of Mr. Bourne had eminently contributed.

With this congregation I greatly improved my plan of catechizing and lecturing, and my classes have been well attended. I have also introduced the custom of expounding the scriptures as I read them, which I had never done before, but which I would earnestly recommend to all ministers. My time being much taken up with my philosophical and other studies, I agreed with the congregation to leave the business of baptizing, and visiting the sick, to Mr. Blyth, and to confine my services to the Sundays. I have been minister here between seven and eight years, without any interruption of my happiness; and for this I am sensible I am in a great measure indebted to the friendship of Mr. Russell.

Here I have never long intermitted my philosophical pursuits, and I have published two volumes of experiments, besides communications to the Royal Society.

In

In theology I have completed my friendly controversy with the Bishop of Waterford on the duration of Christ's ministry, I have published a variety of single sermons, which, with the addition of a few others, I have lately collected, and published in one volume, and I am now engaged in a controversy of great extent, and which promises to be of considerable consequence, relating to the person of Christ.

This was occasioned by my *History of the Corruptions of Christianity*, which I composed and published presently after my settlement at Birmingham, the first section of which being rudely attacked in the Monthly Review,* then by Dr. Horsely, and afterwards by Mr. Howes, and other particular opponents, I undertook to collect from the original writers the state of opinions on the subject in the age succeeding that of the apostles, and I have published the result of my investigation in my *History of early opinions concerning*

* Written by Mr. Badcock. Mr. Badcock was originally a dissenting minister. He came to pay his respects to my father at Calne, at which time he agreed with him upon most subjects. He afterwards found reason to change his opinions, or at least his conduct, connecting himself with the Clergy of the Church of England, and became my father's bitter enemy.

ning Jesus Christ, in four volumes octavo. This work has brought me more antagonists, and I now write a pamphlet annually in defence of the unitarian doctrine against all my opponents.

My only Arian antagonist is Dr. Price, with whom the discussion of the question has proceeded with perfect amity. But no Arian has as yet appeared upon the ground to which I wish to confine the controversy, viz. the state of opinions in the primitive times, as one means of collecting what was the doctrine of the apostles, and the true sense of scripture on the subject.

Some years ago I resumed the *Theological Repository* in which I first advanced my objections to the doctrine of the miraculous conception of Jesus, and his natural fallibility and peccability. These opinions gave at first great alarm, even to my best friends; but that is now in a great measure subsided. For want of sufficient sale, I shall be obliged to discontinue this Repository for some time.

At present I thank God I can say that my prospects are better than they have ever been before, and my own health, and that of my wife, better established, and my hopes as to the dispositions and future settlement of my children satisfactory.

I shall

I shall now close this account of myself with some observations of a general nature, but chiefly an account of those circumstances for which I have more particular reason to be thankful to that good being who has brought me hitherto, and to whom I trust I habitually ascribe whatever my partial friends think the world indebted to me for,

I. Not to enlarge again on what has been mentioned already, on the fundamental blessings of a religious and liberal education, I have particular reason to be thankful for a happy temperament of body and mind, both derived from my parents. My father, grand father, and several branches of the family, were remarkably healthy, and long lived; and though my constitution has been far from robust, and was much injured by a consumptive tendency, or rather an ulcer in my lungs, the consequence of improper conduct of myself when I was at school (being often violently heated with exercise, and as often imprudently chilled by bathing, &c.) from which with great difficulty I recovered, it has been excellently adapted to that studious life which has fallen to my lot.

I have never been subject to head-achs, or any

other complaints that are peculiarly unfavourable to study. I have never found myself less disposed, or less qualified, for mental exertions of any kind at one time of the day more than another; but all seasons have been equal to me, early or late, before dinner or after, &c. And so far have I been from suffering by my application to study, (which however has never been so close or intense as some have imagined) that I have found my health improving from the age of eighteen to the present time; and never have I found myself more free from any disorder than at present. I must, however, except a short time preceding and following my leaving Lord Shelburne, when I laboured under a bilious complaint, in which I was troubled with gall stones, which sometimes gave me exquisite pain. But by confining myself to a vegetable diet, I perfectly recovered; and I have now been so long free from the disorder that I am under no apprehension of its return.

It has been a singular happiness to me, and a proof, I believe, of a radically good constitution, that I have always slept well, and have awaked with my faculties perfectly vigorous, without any disposition to drowsiness. Also, whenever I have been fatigued with

any

any kind of exertion, I could at any time sit down and sleep; and whatever cause of anxiety I may have had, I have almost always lost sight of it when I have got to bed; and I have generally fallen asleep as soon as I have been warm.*

I even think it [illegible]ge to me, and am truly thankful for it, th[illegible]th received the check that it did when I w[illegible]; since a muscular habit from high health [illegible] strong spirits, are not, I think, in general ac[illegible]nied with that sensibility of mind, which is both favourable to piety, and to speculative pursuits.†

To a fundamentally good constitution of body, and the being who gave it me, I owe an even chearfulness of temper, which has had but few interruptions.

---

* My father was an early riser. He never slept more than six hours. He said he did not remember having lost a whole night's sleep but once, [illegible] when awake he often had to suffer much from pain and sickness as well as from other circumstances of a very afflictive nature.

† [illegible] a muscular man he went through great exertion at vari[illegible] of his life with activity. He walked very firmly, and expeditiously.

ons. This I inherit from my father, who had uniformly better spirits than any man that I ever knew, and by this means was as happy towards the close of life, when reduced to poverty, and dependent upon others, as in his best days; and who, I am confident, would not have been unhappy, as I have frequently heard him say, in a workhouse.

Though my readers will easily suppose that, in the course of a life so full of vicissitude as mine has been, many things must have occurred to mortify and discompose me, nothing has ever depressed my mind beyond a very short period. My spirits have never failed to recover their natural level, and I have frequently observed, and at first with some surprize, that the most perfect satisfaction I have ever felt has been a day or two after an event that afflicted me the most, and without any change having taken place in the state of things. Having found this to be the case after many of my troubles, the persuasion that it *would* be so, after a new cause of uneasiness, has never failed to lessen the effect of its first impression, and together with my firm belief of the doctrine of necessity, (and consequently that of every thing being ordered for the best) has contributed to that

degree

degree of composure which I have enjoyed through life, so that I have always considered myself as one of the happiest of men.

When I was a young author, (though I did not publish any thing until I was about thirty) strictures on my writings gave me some disturbance, though I believe even then less than they do most others; but after some time, things of that kind hardly affected me at all, and on this account I may be said to have been well formed for public controversy.* But what has always made me easy in any controversy in which I have been engaged, has been my fixed resolution frankly to acknowledge any mistake that I might perceive I had fallen into. That I have never been in the least backward to do this in matters of philosophy, can never be denied.

As I have not failed to attend to the phenomena of my own mind, as well as to those of other parts of nature,

---

* Though Dr. Priestley has been considered as fond of controversy and that his chief delight consisted in it, yet it is far from being true. He was more frequently the defendant than the assailant. His controversies as far as it depended upon himself were carried on with temper and decency. He was never malicious nor even sarcastic or indignant unless provoked. T. C.

nature, I have not been insensible of some great defects, as well as some advantages, attending its constitution; having from an early period been subject to a most humbling failure of recollection, so that I have sometimes lost all ideas of both persons and things, that I have been conversant with. I have so completely forgotten what I have myself published, that in reading my own writings, what I find in them often appears perfectly new to me, and I have more than once made experiments the results of which had been published by me.

I shall particularly mention one fact of this kind, as it alarmed me much at the time, as a symptom of all my mental powers totally failing me, until I was relieved by the recollection of things of a similar nature having happened to me before. When I was composing the *Dissertations* which are prefixed to my *Harmony of the gospels*, I had to ascertain something which had been the subject of much discussion relating to the Jewish passover (I have now forgotten what it was) and for that purpose had to consult, and compare several writers. This I accordingly did, and digested the result in the compass of a few paragraphs, which I wrote in short hand. But having

ving mislaid the paper, and my attention having been drawn off to other things, in the space of a fortnight, I did the same thing over again; and should never have discovered that I had done it twice, if, after the second paper was transcribed for the press, I had not accidentally found the former, which I viewed with a degree of terror.

Apprized of this defect, I never fail to note down as soon as possible every thing that I wish not to forget. The same failing has led me to devise, and have recourse to, a variety of mechanical expedients to secure and arrange my thoughts, which have been of the greatest use to me in the composition of large and complex works; and what has excited the wonder of some of my readers, would only have made them smile if they had seen me at work. But by simple and mechanical methods one man shall do that in a month, which shall cost another, of equal ability, whole years to execute. This methodical arrangement of a large work is greatly facilitated by mechanical methods, and nothing contributes more to the perspicuity of a large work, than a good arrangement of its parts.

What I have known with respect to myself has tended

tended much to lessen both my admiration, and my contempt, of others. Could we have entered into the mind of Sir Isaac Newton, and have traced all the steps by which he produced his great works, we might see nothing very extraordinary in the process. And great powers with respect to some things are generally attended with great defects in others; and these may not appear in a man's writings. For this reason it seldom happens but that our admiration of philosophers and writers is lessened by a personal knowledge of them.

As great excellencies are often balanced by great, though not apparent, defects, so great and apparent defects are often accompanied by great, though not apparent, excellencies. Thus my defect in point of recollection, which may be owing to a want of sufficient coherence in the association of ideas formerly impressed, may arise from a mental constitution more favourable to new associations; so that what I have lost with respect to memory, may have been compensated by what is called invention, or new and original combinations of ideas. This is a subject that deserves attention, as well as every thing else that relates to the affections of the mind.

Though

Though I have often composed much in a little time, it by no means follows that I could have done much in a given time. For whenever I have done much business in a short time, it has always been with the idea of having time more than sufficient to do it in; so that I have always felt myself at ease, and I could have done nothing, as many can, if I had been hurried.

Knowing the necessity of this state of my mind to the dispatch of business, I have never put off any thing to the last moment; and instead of doing that on the morrow which ought to be done to day, I have often blamed myself for doing to day what had better have been put off until to morrow; precipitancy being more my fault than procrastination.

It has been a great advantage to me that I have never been under the necessity of retiring from company in order to compose any thing. Being fond of domestic life, I got a habit of writing on any subject by the parlour fire, with my wife and children about me, and occasionally talking to them, without experiencing any inconvenience from such interruptions. Nothing but reading, or speaking without interruption, has been any obstruction to me. For I could not

help

help attending (as some can) when others spoke in my hearing. These are useful habits, which studious persons in general might acquire, if they would; and many persons greatly distress themselves, and others, by the idea that they can do nothing except in perfect solitude or silence.

Another great subject of my thankfulness to a good providence is my perfect freedom from any embarrassment in my circumstances, so that, without any anxiety on the subject, my supplies have always been equal to my wants; and now that my expences are increased to a degree that I had no conception of some years ago, I am a richer man than I was, and without laying myself out for the purpose. What is more, this indifference about an increase of fortune has been the means of attaining it. When I began my experiments, I expended on them all the money I could possibly raise, carried on by my ardour in philosophical investigations, and entirely regardless of consequences, except so far as never to contract any debt; and if this had been without success, my imprudence would have been manifest. But having succeeded, I was in time more than indemnified for all that I had expended.

My

My theological studies, especially those which made it necessary for me to consult the Christian Fathers, &c. have also been expensive to me. But I have found my theological friends even more liberal than my philosophical ones, and all beyond my expectations.

In reflecting on my past life I have often thought of two sayings of Jacob. When he had lost one of his sons, and thought of other things that were afflictions to him, he said, "all these things are against me," at the same time that they were in reality making for him. So the impediment in my speech, and the difficulties of my situation at Needham, I now see as much cause to be thankful for, as for the most brilliant scenes in my life.

I have also applied to myself what Jacob said on his return from Padan Aram. "With my staff I went over this Jordan, and now I am become two bands;" when I consider how little I carried with me to Needham and Nantwich, how much more I had to carry to Warrington, how much more still to Leeds, how much more than that to Calne, and then to Birmingham.

Yet, frequently as I have changed my situation,

and

and always for the better, I can truly say that I never wished for any change on my own account. I should have been contented even at Needham, if I could have been unmolested, and had bare necessaries. This freedom from anxiety was remarkable in my father, and therefore is in a manner hereditary to me; but it has been much increased by reflection; having frequently observed, especially with respect to christian ministers, how often it has contributed to embitter their lives, without being of any use to them. Some attention to the improvement of a man's circumstances is, no doubt, right, because no man can tell what occasion he may have for money, especially if he have children, and therefore I do not recommend my example to others. But I am thankful to that good providence which always took more care of me than I ever took of myself.

Hitherto I have had great reason to be thankful with respect to my children, as they have a prospect of enjoying a good share of health, and a sufficient capacity for performing the duties of their stations. They have also good dispositions, and as much as could be expected at their age, a sense of religion. But as I hope they will live to see this work, I say

the

the less on this subject, and I hope they will consider what I say in their favour as an incitement to exert themselves to act a christian and useful part in life; that the care that I and their mother have taken of their instruction may not be lost upon them, and that they may secure a happy meeting with us in a better world.

I esteem it a singular happiness to have lived in an age and country, in which I have been at full liberty both to investigate, and by preaching and writing to propagate, religious truth; that though the freedom I have used for this purpose was for some time disadvantageous to me, it was not long so, and that my present situation is such that I can with the greatest openness urge whatever appears to me to be the truth of the gospel, not only without giving the least offence, but with the intire approbation of those with whom I am particularly connected.

As to the dislike which I have drawn upon myself by my writings, whether that of the Calvinistic party, in or out of the church of England, those who rank with rational dissenters (but who have been exceedingly offended at my carrying my inquiries farther than they wished any person to do)

or whether they be unbelievers, I am thankful that it gives less disturbance to me than it does to themselves; and that their dislike is much more than compensated by the cordial esteem and approbation of my conduct by a few, whose minds are congenial to my own, and especially that the number of such person increases. [*Birmingham*, 1787.

A Continuation of the Memoirs, written at Northumberland in America in the beginning of the year 1795.

WHEN I wrote the preceding part of these Memoirs I was happy as must have appeared in the course of them, in the prospect of spending the remainder of my life at Birmingham, where I had every advantage for pursuing my studies, both philosophical and theological; but it pleased the sovereign disposer of all things to appoint for me other removals, and the manner in which they were brought about were more painful to me than the removals themselves. I am far, however, from questioning the wisdom or the goodness of the appointments respecting myself or others.

To resume the account of my pursuits where the former part of the Memoirs left it, I must observe that, in the prosecution of my *experiments*, I was led to maintain the doctrine of phlogiston against Mr. Lavoisier and other chemists in France, whose opinions were adopted not only by almost all the philosophers of that country, but by those in England and Scotland also. My friends, however, of the lunar society were never satisfied with the Anti-phlogistic doctrine. My experiments and observations on this subject were published in various papers in the Philosophical Transactions. At Birmingham I also published a new edition of my publications on the subject of *air*, and others connected with it, reducing the six volumes to three, which, with his consent, I dedicated to the prince of Wales.

In theology I continued my *defences of Unitarianism*, until it appeared to myself and my friends that my antagonists produced nothing to which it was of any consequence to reply. But I did not, as I had proposed, publish any address to the bishops, or to the legislature, on the subject. The former I wrote, but did not publish. I left it, however, in the hands of Mr. Belsham when I came to America, that he

might dispose of it as he should think proper.

The pains that I took to ascertain the state of early opinions concerning Jesus Christ, and the great misapprehensions I perceived in all the ecclesiastical historians, led me to undertake a *General History of the christian church to the fall of the Western empire*, which accordingly I wrote in two volumes octavo, and dedicated to Mr. Shore. This work I mean to continue.

At Birmingham I wrote the *second part* of my *Letters to a philosophical Unbeliever*, and dedicated the whole to Mr. Tayleur of Shrewsbury, who had afforded me most material assistance in the publication of many of my theological works, without which, the sale being inconsiderable, I should not have been able to publish them at all.

Before I left Birmingham I preached a funeral sermon for my friend Dr. Price, and another for Mr. Robinson of Cambridge, who died with us on a visit to preach our annual charity school sermon. I also preached the last annual sermon to the friends of the college at Hackney. All these three sermons were published.

About two years before I left Birmingham the question

question about the *test act* was much agitated both in and out of parliament. This, however, was altogether without any concurrence of mine. I only delivered, and published, a sermon on the 5th of November 1789, recommending the most peaceable method of pursuing our object. Mr. Madan, however, the most respectable clergyman in the town, preaching and publishing a most inflammatory sermon on the subject, inveighing in the bitterest manner against the Dissenters in general, and myself in particular, I addressed a number of *familiar letters to the inhabitants of Birmingham* in our defence. This produced a reply from him, and other letters from me. All mine were written in an ironical and rather a pleasant manner, and in some of the last of them I introduced a farther reply to Mr. Burn, another clergyman in Birmingham, who had addressed to me *letters on the infallibility of the testimony of the Apostles concerning the person of Christ*, after replying to his first set of Letters, in a separate publication.

From these small pieces I was far from expecting any serious consequences. But the Dissenters in general being very obnoxious to the court, and it being imagined, though without any reason, that I

had been the chief promoter of the measures which gave them offence, the clergy, not only in Birmingham, but through all England, seemed to make it their business, by writing in the public papers, by preaching, and other methods, to inflame the minds of the people against me. And on occasion of the celebration of the anniversary of the French revolution on July 14th, 1791, by several of my friends, but with which I had little to do, a mob encouraged by some persons in power, first burned the meeting house in which I preached, then another meeting house in the town, and then my dwelling house, demolishing my library, apparatus, and, as far as they could, every thing belonging to me. They also burned, or much damaged, the houses of many Dissenters, chiefly my friends; the particulars of which I need not recite, as they will be found in two *Appeals* which I published on the subject written presently after the riots.

Being in some personal danger on this occasion, I went to London; and so violent was the spirit of party which then prevailed, that I believe I could hardly have been safe in any other place. There, however, I was perfectly so, though I continued to

be

be an object of troublesome attention until I left the country altogether. It shewed no small degree of courage and friendship in Mr. William Vaughan to receive me into his house, and also in Mr. Salte, with whom I spent a month at Tottenham. But it shewed more in Dr. Price's congregation at Hackney, to invite me to succeed him, which they did, though not unanimously, some time after my arrival in London.

In this situation I found myself as happy as I had been at Birmingham, and contrary to general expectation, I opened my lectures to young persons with great success, being attended by many from London; and though I lost some of the hearers, I left the congregation in a better situation than that in which I found it.

On the whole, I spent my time even more happily at Hackney than ever I had done before; having every advantage for my philosophical and theological studies, in some respect superior to what I had enjoyed at Birmingham, especially from my easy access to Mr. Lindsey, and my frequent intercourse with Mr. Belsham, professor of divinity in the New College, near which I lived. Never, on this side the

grave, do I expect to enjoy myself so much as I did by the fire side of Mr. Lindsey, conversing with him and Mrs. Lindsey on theological and other subjects, or in my frequent walks with Mr. Belsham, whose views of most important subjects were, like Mr. Lindsey's, the same with my own.

I found, however, my society much restricted with respect to my philosophical acquaintance; most of the members of the Royal Society shunning me on account of my religious or political opinions, so that I at length withdrew myself from them, and gave my reasons for so doing in the Preface to my *Observations and Experiments on the generation of air from water*, which I published at Hackney. For, with the assistance of my friends, I had in a great measure replaced my Apparatus, and had resumed my experiments, though after the loss of near two years.

Living in the neighbourhood of the New College, I voluntarily undertook to deliver the lectures to the pupils on the subject of *History and General policy*, which I had composed at Warrington, and also on *Experimental Philosophy and Chemistry*, the *Heads* of which I drew up for this purpose, and afterwards published.

published. In being useful to this Institution I found a source of considerable satisfaction to myself. Indeed, I have always had a high degree af enjoyment in lecturing to young persons, though more on theological subjects than on any other.

After the riots in Birmingham I wrote *an Appeal to the Public* on the subject, and that being replied to by the clergy of the place, I wrote a *second part*, to which, though they had pledged themselves to do it, they made no reply; so that, in fact the criminality of the magistrates, and other principal High-church men at Birmingham, in promoting the riot, remains acknowledged. Indeed, many circumstances, which have appeared since that time, shew that the friends of the court, if not the prime ministers themselves, were the favourers of that riot; having, no doubt, thought to intimidate the friends of liberty by the measure.

To my Appeal I subjoined various *Addresses** that

* Many of these addresses have been published already. In the appendix to the present life (No. 7.) will be given an arranged list of the addresses to Dr. Priestley from various bodies of men at various times of his life; they illustrate the following positions so honourable

that were sent to me from several descriptions of persons in England, and abroad; and from them I will not deny that I received much satisfaction, as it appeared that the friends of liberty, civil and religious, were of opinion that I was a sufferer in that cause. From France I received a considerable number of Addresses; and when the present *National Convention* was called, I was invited by many of the departments to be a member of it. But I thought

---

nourable to his character, and so necessary to a just view of it. 1st That wherever he officiated as a dissenting minister, he never quitted his situation but with the sincere regrets of those among whom he had resided, and with parting testimonies of their affectionate approbation of his conduct. 2dly. That the riots at Birmingham called forth such abundant testimonies in favour of his moral conduct and eminent usefulness, that the promoters of those riots whether in church or state can have no palliation in the eye of a discerning public for their proceedings, so far as he was the object of them. Those only use violence in opposition to argument who have no argument to use. 3dly. That his quitting England for America, was regarded as a national loss to Great Britain, and the circumstances which induced it, a national disgrace. 4thly. That his reception in this country was as honourable as his friends had reason to expect: And his demeanour since his residence here, has been such as to gain him encreased reputation and respect, among those who knew nothing of him personally before his arrival. T. C.

thought myself more usefully employed at home, and that I was but ill qualified for a business which required knowledge which none but a native of the country could possess; and therefore declined the honour that was proposed to me.

But no addresses gave me so much satisfaction as those from my late congregation, and especially of the young persons belonging to it, who had attended my lectures. They are a standing testimony of the zeal and fidelity with which I did my duty with respect to them, and which I value highly.

Besides congratulatory addresses, I received much pecuniary assistance from various persons, and bodies of men, which more than compensated for my pecuniary losses, though what was awarded me at the Assizes fell two thousand pounds short of them. But my brother-in-law, Mr. John Wilkinson, from whom I had not at that time any expectation, in consequence of my son's leaving his employment, was the most generous on the occasion. Without any solicitation, he immediately sent me five hundred pounds, and afterwards transferred to me ten thousand pounds which he had deposited in the French funds, and until that be productive, he allows me two hundred pounds per annum.

After

After the riots, I published my *Letters to the Swedenborgian Society*, which I had composed, and prepared for the press just before.

Mr. Wakefield living in the neighbourhood of the College, and publishing at this time his objections to *public worship*, they made a great impression on many of our young men, and in his Preface he reflected much on the character of Dr. Price. On both these accounts I thought myself called upon to reply to him, which I did in a series of *Letters to a young man*. But though he made several angry replies, I never noticed any of them. In this situation I also answered Mr. Evanson's *Observations on the dissonance of the Evangelists* in a *second set of Letters to a young man*. He also replied to me, but I was satisfied with what I had done, and did not continue the controversy.

Besides the *sermon* which I delivered on my acceptance of the invitation to the meeting at Hackney, in the preface to which I gave a detailed account of my *system of catechizing*, I published two *Fast sermons* for the years 1793 and 1794, in the latter of which I gave my ideas of antient prophecies compared with the then state of Europe, and in the preface to it I

gave

gave an account of my reasons for leaving the country. I also published a *Farewell sermon.**

But the most important of my publications in this situation were a series of *Letters to the Philosophers and Politicians of France on the subject of Religion.* I thought that the light in which I then stood in that country gave me some advantage in my attempts to enforce the evidence of natural and revealed religion. I also published a set of *sermons on the evidences of revelation*, which I first delivered by public notice, and the delivery of which was attended by great numbers. They were printed just before I left England.

As the reasons for this step in my conduct are given at large in the preface to my Fast sermon, I shall not dwell upon them here. The bigotry of the country in general made it impossible for me to place my sons in it to any advantage. William had been some time in France, and on the breaking out of the troubles in that country he had embarked for America, where his two brothers met him. My own situation,

* These reasons, as shewing the progress and state of his mind that induced this new æra of his life, will be inserted hereafter.

ation, if not hazardous, was become unpleasant, so that I thonght my removal would be of more service to the cause of truth than my longer stay in England. At length, therefore, with the approbation of all my friends, without exceprion, but with great reluctance on my own part, I came to that resolution; I being at a time of life in which I could not expect much satisfaction as to friends and society, comparable to that which I left, in which the resumption of my philosophical pursuits must be attended with great disadvantage, and in which success in my still more favourite pursuit, the propagation of unitarianism, was still more uncertain. It was also painful to me to leave my daughter, Mr. Finch having the greatest aversion to leave his relations and friends in England.

At the time of my leaving England my son in conjunction with Mr. Cooper, and other English emigrants, had a scheme for a large settlement for the friends of liberty in general near the head of the Susquehanna in Pennsylvania. And taking it for granted that it would be carried into effect, after landing at New-York, I went to Philadelphia, and thence came to Northumberland, a town the nearest to the propos-

ed

ed settlement, thinking to reside there until some progress had been made in it. The settlement was given up; but being here, and my wife and myself liking the place, I have determined to take up my residence here, though subject to many disadvantages. Philadelphia was excessively expensive, and this comparatively a cheap place; and my son's, settling in the neighbourhood, will be less exposed to temptation, and more likely to form habits of sobriety and industry. They will also be settled at much less expence than in or near a large town. We hope, after some time, to be joined by a few of our friends from England, that a readier communication will be opened with Philadelphia, and that the place will improve, and become more eligible in other respects.

When I was at sea, I wrote some *observations on the cause of the present prevalence of infidelity*, which I published, and prefixed to a new edition of the *Letters to the Philosophers and Politicians of France*. I have also published my *Fast and Farewell sermons*, and my *small tracts* in defence of unitarianism, also a *Continuation of those Letters*, and a *third part of Letters to a Philosophical Unbeliever*, in answer to *Mr. Paine's Age of Reason*.

The

The observations on the prevalence of infidelity I have much enlarged, and intend soon to print; but I am chiefly employed on the Continuation of my History of the christian church.

Northumberland, March 24, 1795, in which I have completed the sixty second year of my age.

A

CONTINUATION

OF THE

MEMOIRS

OF

DR. JOSEPH PRIESTLEY.

[*Written by his Son Joseph Priestley.*]

THUS far the narrative is from my father's manuscript, and I regret extremely, with the reader, that it falls to my lot to give an account of the latter period of his valuable life.

I entertained hopes at one time, that he would have continued it himself; and he was frequently requested to do so, by me and many of his friends in the course of the year preceding his death. He had then nearly compleated all the literary works he had in view, he had arrived at that period of life

 when,

when, in imitation of his friend Mr. Lindsey, he had determined not to preach again in public, and beyond which he probably would not have ventured to publish any work without first subjecting it to the inspection of some judicious friend.

He was requested also, in imitation of Courayer, to add at the close of his Memoirs a summary of his religious opinions. This would have counteracted the suspicions entertained by some, that they had undergone a considerable change since his coming to America; and it was thought by his friends, that such a brief and simple statement of all that appeared to him essential to the christian belief, and the christian character, would attract the attention of many readers previously indisposed to religion altogether, from not understanding its real nature, and judging of it only from the corrupt, adulterated, and complicated state, in which it is professed in all countries called christian. Unbelievers in general have no conception of the perfect coincidence of christianity with rational philosophy, of the sublime views it affords of the divine benevolence, and how powerfully it acts to promote the pleasures and lessen the evils of the present life, at the same time that it holds out

to

to us a certain prospect of a future and endless state of enjoyment. It was suggested to him also, that as his society through life had been singularly varied and extensive, and his opportunities of attaining a general knowledge of the world, and a particular knowledge of eminent political and literary characters, very great, it would contribute much to the instruction and amusement of those into whose hands his Memoirs should fall, if they were accompanied with anecdotes of the principal characters with whom he had been acquainted. For he had a fund of anecdote which he was never backward to produce for the amusement of his friends, as occasions served for introducing it. But his relations were never sarcastic or ironical, or tended to disparage the characters of the persons spoken of, unless on subjects of manifest importance to the interests of society.

He meant to have complied with the above suggestions, but being at that time very busily employed about his Comparison, and thinking his Memoirs of little value compared with the works about which he wasthen engaged, he put off the completion of his narrative, until his other works should be ready for the

press. Unfortunately this was too late. The work he had in hand was not compleated until the 22d January, when he was very weak and suffered greatly from his disorder, and he died on the 6th of February following:

The reader will therefore make allowance for the difference between what these Memoirs might have been, and what they now are; and particularly for the part which I venture to lay before the public as a continuation of his own account.

The reasons that induced him to quit England, and the progress of his opinions and inclinations respecting that last important æra in his life, have been but briefly stated in the preceding pages by himself. But as many may peruse these Memoirs, into whose hands his appeal to the public, occasioned by the riots at Birmingham, and his Fast sermon, in which he assigns at length his reasons for leaving his native country, are not likely to fall; I think it right to present to the readers, in his own words the history of the motives that impelled him to exchange his residence in England for one in this country.

The disgraceful riots at Birmingham were certainly the chief cause that first induced my father to think

think of leaving England, though at the time of his writing the second part of the Appeal, in August 1792, he had not come to any determination on the subject. This appears from the following passage which as it shews the progress of his discontent, and likewise the true state of his political opinions, particularly in relation to the English form of government I shall quote.—

"In this almost universal prevalence of a spirit so extremely hostile to me and my friends, and which would be gratified by my destruction, it cannot be any matter of surprise, that a son of mine should wish to abandon a country in which his father has been used as I have been, especially when it is considered that this son was present at the riot in Birmingham, exerting himself all the dreadful night of the 14th of July, to save what he could of my most valuable property; that in consequence of this his life was in imminent danger, and another young man was nearly killed because he was mistaken for him. This would probably have been his fate, if a friend had not almost perforce kept him concealed some days, so that neither myself nor his mother knew what was become of him. I had not, how-

ever, the ambition to court the honour that has been shewn him by the national assembly of France, and even declined the proposal of his naturalization. At the most, I supposed it would have been done without any *eclat;* and I knew nothing of its being done in so very honourable a way until I saw the account in the public newspapers. To whatever country this son of mine shall choose to attach himself, I trust that, from the good principles, and the spirit, that he has hitherto shewn, he will discharge the duties of a good citizen."

"As to myself, I cannot be supposed to feel much attachment to a country in which I have neither found protection, nor redress. But I am too old, and my habits too fixed, to remove, as I own I should otherwise have been disposed to do, to France, or America. The little that I am capable of doing must be in England, where I shall therefore continue, as long as it shall please the supreme Disposer of all things to permit me*.

* "Since this was written, I have myself, without any solicitation on my part, been made a citizen of France, and moreover elected a member of the present Conventional Assembly. These, I scruple not to avow, I consider as the greatest of honours; though, for the reasons which are now made public, I have declined accepting the latter."

It might have been thought that, having written so much in defence of revelation, and of Christianity in general, more perhaps than all the clergy of the church of England now living; this defence of a *common cause* would have been received as some atonement for my demerits in writing against civil establishments of christianity, and particular doctrines. But had I been an open enemy of all religion, the animosity against me could not have been greater than it is. Neither Mr. Hume nor Mr. Gibbon was a thousandth part so obnoxious to the clergy as I am; so little respect have my enemies for christianity itself, compared with what they have for their emoluments from it."

"As to my supposed hostility to the principles of the civil constitution of this country, there has been no pretence whatever for charging me with any thing of the kind. Besides that the very catalogue of my publications will prove that my life has been devoted to literature, and chiefly to natural philosophy and theology, which have not left me any leisure for factious politics; in the few things that I have written of a political nature, I have been an avowed advocate for our mixed government by

King, Lords, and Commons; but because I have objected to the ecclesiastical part of it, and to particular religious tenets, I have been industriously represented as openly seditious, and endeavouring the overthrow of every thing that is *fixed*, the enemy of all order, and of all government."

"Every publication which bears my name is in favour of our present form of government. But if I had not thought so highly of it, and had seen reason for preferring a more republican form, and had openly advanced that opinion; I do not know that the proposing to free discussion a system of government different from that of England, even to Englishmen, is any crime, according to the existing laws of this country. It has always been thought, at least, that our constitution authorises the free proposal, and discussion, of all theoretical principles whatever, political ones not excepted. And though I might now recommend a very different form of government to a people who had no previous prejudices or habits, the case is very different with respect to one that *has;* and it is the duty of every good citizen to maintain that government of any country which the majority of its inhabitants approve,

prove, whether he himself should otherwise prefer it, or not."

"This, however, is all that can in reason be required of any man. To demand more would be as absurd as to oblige every man, by the law of marriage, to maintain that his particular wife was absolutely the handsomest, and best tempered woman in the world; whereas it is surely sufficient if a man behave well to his wife, and discharge the duties of a good husband."

"A very great majority of Englishmen, I am well persuaded, are friends to what are called *high maxims of government*. They would choose to have the power of the crown rather enlarged than reduced, and would rather see all the Dissenters banished than any reformation made in the church. A dread of every thing tending to *republicanism* is manifestly increased of late years, and is likely to increase still more. The very term is become one of the most opprobrious in the English language. The clergy (whose near alliance with the court, and the present royal family, after having been almost a century hostile to them, is a remarkable event in the present reign) have contributed not a little to

that

that leaning to arbitrary power in the crown which has lately been growing upon us. They preach up the doctrine of passive obedience and non-resistance with as little disguise as their ancestors did in the reign of the Stuarts, and their adulation of the king and of the minister is abject in the extreme. Both Mr. Madan's sermon and Mr. Burn's reply to my Appeal discover the same spirit; and any sentiment in favour of liberty that is at all bold and manly, such as, till of late, was deemed becoming Englishmen and the disciples of Mr. Locke, is now reprobated as seditious."

"In these circumstances, it would be nothing less than madness seriously to attempt a change in the constitution, and I hope I am not absolutely insane. I sincerely wish my countrymen, as part of the human race (though, I own, I now feel no particular attachment to them on any other ground) the undisturbed enjoyment of that form of government which they so evidently approve; and as I have no favour to ask of them, or of their governors, besides mere protection, as to a stranger, while I violate no known law, and have not this to ask for any long term, I hope it will be granted me. If not, I must, like

like many others, in all ages and all nations, submit to whatever the supreme Being, whose eye is upon us all, and who I believe intends, and will in his own time bring about, the good of all, shall appoint, and by their means execute." [*Appeal part II page* 109. *&c.*]

The rising disinclination which the preceding passage shews had taken place in my father's mind towards a longer residence in England, became confirmed by various circumstances, particularly the determination of his sons to emigrate to America. These, together with other reasons, that finally influenced his conduct on the subject of removing to this country, are stated at large as I have before observed in the preface to his Fast sermon for the year 1794 and I cannot so properly give them as in his own words.

" THIS discourse, and those on the *Evidences of Divine Revelation*, which will be published about the same time, being the last of my labours in this country, I hope my friends, and the public, will indulge me while I give the reasons of their *being* the last, in consequence of my having at length, after much

much hesitation, and now with reluctance, come to a resolution to leave this kingdom.

After the riots in Birmingham, it was the expectation, and evidently the wish, of many persons, that I should immediately fly to France, or America. But I had no consciousness of guilt to induce me to fly my country*. On the contrary, I came directly to London, and instantly, by means of my friend Mr. Russell, signified to the king's ministers, that I *was* there, and ready, if they thought proper, to

---

* If, instead of flying from lawless violence, I had been flying from public justice, I could not have been pursued with more rancour, nor could my friends have been more anxious for my safety. One man, who happened to see me on horseback on one of the nights in which I escaped from Birmingham, expressed his regret that he had not taken me, expecting probably some considerable reward, as he said, it was so easy for him to have done it. My friends earnestly advised me to disguise myself as I was going to London. But all that was done in that way was taking a place for me in the mail coach, which I entered at Worcester, in another name than my own. However, the friend who had the courage to receive me in London had thought it necessary to provide a dress that should disguise me, and also a method of making my escape, in case the house should have been attacked on my account; and for some time my friends would not suffer me to appear in the streets.

to be interrogated on the subject of the riot. But no notice was taken of the message.

Ill treated as I thought I had been, not merely by the populace of Birmingham, for they were the mere tools of their superiors, but by the country in general, which evidently exulted in our sufferings, and afterwards by the representatives of the nation, who refused to inquire into the cause of them, I own I was not without deliberating upon the subject of emigration; and several flattering proposals were made me, especially from France, which was then at peace within itself, and with all the world; and I was at one time much inclined to go thither, on account of its nearness to England, the agreeableness of its climate, and my having many friends there.

But I likewise considered that, if I went thither I should have no employment of the kind to which I had been accustomed; and the season of active life not being, according to the course of nature, quite over, I wished to make as much use of it as I could. I therefore determined to continue in England, exposed as I was not only to unbounded obloquy and insult, but to every kind of outrage; and after my invitation to succeed my friend

friend Dr. Price, I had no hesitation about it. Accordingly I took up my residence where I now am, though so prevalent was the idea of my insecurity, that I was not able to take the house in my own name; and when a friend of mine took it in *his*, it was with much difficulty that, after some time, the landlord was prevailed upon to transfer the lease to me. He expressed his apprehensions, not only of the house that I occupied, being demolished, but also a capital house in which he himself resides, at the distance of no less than twenty miles from London, whither he supposed the rioters would go next, merely for suffering me to live in a house of *his*.

But even this does not give such an idea of the danger that not only myself, but every person, and every thing, that had the slightest connection with me, were supposed to be in, as the following. The managers of one of the principal charities among the Dissenters applied to me to preach their annual sermon, and I had consented. But the treasurer a man of fortune, who knew nothing more of me than my name, was so much alarmed at it, that he declared he could not sleep. I therefore, to his great relief, declined preaching at all.

When

When it was known that I was settled where I now am, several of my friends, who lived near me, were seriously advised to remove their papers, and other most valuable effects, to some place of greater safety in London. On the 14th of July, 1792, it was taken for granted by many of the neighbours, that my house was to come down, just as at Birmingham the year before. When the Hackney association was formed, several servants in the neighbourhood actually removed their goods; and when there was some political meeting at the house of Mr. Breillat, though about two miles from my house, a woman whose daughter was servant in the house contiguous to mine, came to her mistress, to entreat that she might be out of the way; and it was not without much difficulty that she was pacified, and prevailed upon to let her continue in the house, her mistress saying that she was as safe as herself.

On several other occasions the neighbourhood has been greatly alarmed on account of my being so near them. Nor was this without apparent reason. I could name a person, and to appearance a reputable tradesman, who, in the company

of

of his friends, and in the hearing of one of my late congregation at Birmingham, but without knowing him to be such, declared that, in case of any disturbance, they would immediately come to Hackney, evidently, for the purpose of mischief. In this state of things, it is not to be wondered at, that of many servants who were recommended to me, and some that were actually hired, very few could, for a long time, be prevailed upon to live with me.

These facts not only shew how general was the idea of my particular insecurity in this country; but what is of much more consequence, and highly interesting to the country at large, an idea of the general disposition to rioting and violence that prevails in it, and that the Dissenters are the objects of it. Mr. Pitt very justly observed, in his speech on the subject of the riots at Birmingham, that it was "the effervescence of the public mind." Indeed the effervescible matter has existed in this country ever since the civil wars in the time of Charles I. and it was particularly apparent in the reign of Queen Anne. But the power of government under the former princes of the House of Hanover prevented its

its doing any mischief. The late events shew that this power is no longer exerted as it used to be, but that, on the contrary there prevails an idea, well or ill founded, that tumultuary proceedings against Dissenters will not receive any effectual discouragement. After what has taken place with respect to Birmingham, all idea of much hazard for insulting and abusing the Dissenters is entirely vanished; whereas the disposition to injure the Catholics was effectually checked by the proceedings of the year 1780. From that time *they* have been safe, and I rejoice in it. But from the year 1791, the Dissenters have been more exposed to insult and outrage than ever.

Having fixed myself at Clapton; unhinged as I had been, and having lost the labour of several years; yet flattering myself that I should end my days here, I took a long lease of my house, and expended a considerable sum in improving it. I also determined, with the assistance of my friends, to resume my philosophical and other pursuits; and after an interruption amounting to about two years, it was with a pleasure that I cannot describe, that I entered my new laboratory, and began the most com-

mon preparatory processes, with a view to some original inquiries. With what success I have laboured, the public has already in some measure seen, and may see more hereafter.

But though I did not choose (notwithstanding I found myself exposed to continual insult) to leave my native country, I found it necessary to provide for my sons elsewhere. My eldest son was settled in a business, which promised to be very advantageous, at Manchester; but his partner though a man of liberality himself, informed him, on perceiving the general prevalence of the spirit which produced the riots in Birmingham, that, owing to his relationship to *me*, he was under the necessity of proposing a separation, which accordingly took place.

On this he had an invitation to join another connexion, in a business in which the spirit of party could not have much affected him; but he declined it. And after he had been present at the assizes at Warwick, he conceived such an idea of this country, that I do not believe any proposal, however advantageous, would have induced him to continue in it; so much was he affected on perceiving his father treated as I had been.

Determin-

Determining to go to America, where he had no prospect but that of being a farmer, he wished to spend a short time with a person who had greatly distinguished himself in that way, and one who from his own general principles, and his friendship for myself, would have given him the best advice and assistance in his power. He, however, declined it, and acknowledged some time after, that had it been known, as it must have been, to his landlord, that he had a son of *mine* with him, he feared he should have been turned out of his farm.

My second son who was present both at the riot, and the assizes, felt more indignation still, and willingly listened to a proposal to settle in France; and there his reception was but too flattering. However, on the breaking out of the war with this country, all mercantile prospects being suspended, he wished to go to America. There his eldest and youngest brother have joined him, and they are now looking out for a settlement, having as yet no fixed views.

The necessity I was under of sending my sons out of this country, was my principal inducement to send the little property that I had out of it too; so that I had nothing in England besides my library,

apparatus, and household goods. By this, I felt myself greatly relieved, it being of little consequence where a man already turned sixty ends his days. Whatever good or evil I have been capable of, is now chiefly done; and I trust that the same consciousness of integrity, which has supported me hitherto, will carry me through any thing that may yet be reserved for me. Seeing, however, no great prospect of doing much good, or having much enjoyment, here, I am now preparing to follow my sons; hoping to be of some use to them in their present unsettled state, and that Providence may yet, advancing in years as I am, find me some sphere of usefulness along with them.

As to the great odium that I have incurred, the charge of *sedition*, or my being an enemy to the constitution or peace of my country, is a mere pretence for it; though it has been so much urged, that it is now generally believed, and all attempts to undeceive the public with respect to it avail nothing at all. The whole course of my studies, from early life, shews how little *politics* of any kind have been my object. Indeed to have written so much as I have in *theology*, and to have done so much in *experimental*

rimental philosophy, and at the same time to have had my mind occupied, as it is supposed to have been, with factious politics, I must have had faculties more than human. Let any person only cast his eye over the long list of my publications, and he will see that they relate almost wholly to theology, philosophy, or general literature.

I did, however, when I was a younger man, and before it was in my power to give much attention to philosophical pursuits, write a small anonymous political pamphlet, on the *State of Liberty in this Country*, about the time of Mr. Wilkes's election for Middlesex, which gained me the acquaintance, and I may say the friendship, of Sir George Savile, and which I had the happiness to enjoy as long as he lived.

At the request also of Dr. Franklin and Dr. Fothergill, I wrote an address to the Dissenters on the subject of the approaching rupture with America, a pamphlet which Sir George Savile, and my other friends, circulated in great numbers, and it was thought with some effect.

After this I entirely ceased to write any thing on the subject of politics, except as far as the business

of the *Test Act*, and of *Civil Establishments of Religion*, had a connection with politics. And though, at the recommendation of Dr. Price, I was presently after this taken into the family of the Marquis of Landsdowne, and I entered into almost all his views, as thinking them just and liberal, I never wrote a single political pamphlet, or even a paragraph in a newspaper, all the time that I was with him, which was seven years.

I never preached a political sermon in my life; unless such as, I believe all Dissenters usually preach on the fifth of November, in favour of *civil and religious liberty*, may be said to be political. And on these occasions, I am confident, that I never advanced any sentiment but such as, until of late years, would have tended to recommend, rather than render me obnoxious, to those who direct the administration of this country. And the doctrines which I adopted when young, and which were even popular then (except with the clergy, who were at that time generally disaffected to the family on the throne) I cannot abandon, merely because the times are so changed, that they are now become unpopular, and the expression and communication of them hazardous.

Farther,

Farther, though I by no means disapprove of societies for political information, such as are now every where discountenanced, and generally suppressed, I never was a member of any of them; nor, indeed, did I ever attend any public meeting, if I could decently avoid it, owing to habits acquired in studious and retired life.

From a mistake of my talents and disposition, I was invited by many of the departments in France, to represent them in the present National Convention, after I had been made a citizen of France, on account of my being considered as one who had been persecuted for my attachment to the cause of liberty here. But though the invitation was repeated with the most flattering importunity, I never hesitated about declining it.

I can farther say with respect to politics, concerning which I believe every Englishman has some opinion or other (and at present, owing to the peculiar nature of the present war, it is almost the only topic of general conversation) that, except in company, I hardly ever think of the subject, my reading, meditation, and writing, being almost wholly engrossed by theology, and philosophy; and of late, as for many

years before the riots in Birmingham, I have spent a very great proportion of my time, as my friends well know, in my laboratory.

If, then, my real crime has not been *sedition*, or *treason*, what has it been? For every *effect* must have some adequate *cause*, and therefore the odium that I have incurred must have been owing to something in my declared sentiments, or conduct, that has exposed me to it. In my opinion, it cannot have been any thing but my open hostility to the doctrines of the established church, and more especially to all civil establishments of religion whatever. This has brought upon me the implacable resentment of the great body of the clergy; and they have found other methods of opposing me besides *argument*, and that use of the *press* which is equally open to us all. They have also found an able ally and champion in Mr. Burke, who (without any provocation except that of answering his book on the French Revolution) has taken several opportunities of inveighing against me, in a place where he knows I cannot reply to him, and from which he also knows that his accusation will reach every corner of the country, and consequently thousands of persons who will

will never read any writings of mine*. They have had another, and still more effectual vehicle of their abuse in what are called the *treasury newspapers*, and other popular publications.

By these and others means, the same party spirit which was the cause of the riots in Birmingham, has been increasing ever since, especially in that neighbourhood. A remarkable instance of this may be seen in a *Letter* addressed, but not sent, to me from *Mr. Foley, rector of Stourbridge*, who acknowledges the satisfaction that he and his brethren have received from one of the grossest and coarsest pieces of abuse of me that has yet appeared, which, as a curious specimen of the kind, I inserted in the *Appendix of my Appeal*, and in which I am represented as no better than Guy Fawkes, or the devil himself. This very Christian divine recommends to

---

Mr. Burke having said in the House of Commons, that "I was "made a citizen of France on account of my declared hostility to the "constitution of this country," I, in the public papers, denied the charge, and called upon him for the proofs of it. As he made no reply, I said, in the preface to my Fast Sermon of the last year, p. 9, that "it sufficiently appeared that he had neither ability to maintain "his charge, nor virtue to retract it." A year more of silence on his part having now elapsed, this is become more evident than before.

to the members of the established church to decline all commercial dealings with the Dissenters, as an effectual method of exterminating them. This method has been actually adopted in many parts of England. Also great numbers of the best farmers and artizans in England have been dismissed because they would not go to the established church. *Defoe's Shortest Way with the Dissenters** would have taught the friends of the church a more effectual method still. And yet this Mr. Foley, whom I never saw, and who could not have had any particular cause of enmity to me, had, like Mr. Madan of Birmingham, a character for liberality. What, then, have we to expect from others, when we find so much bigotry and rancour in such men as these?

Many times, by the encouragement of persons from whom better things might have been expected, I have been burned in effigy along with Mr. Paine; and numberless insulting and threatening letters have been sent to me from all parts of the kingdom.†

It

* A tract written in a grave ironical stile, advising to hang them all.

† In one of these I was threatened with being burned alive before a slow fire.

It is not possible for any man to have conducted himself more peaceably than I have done all the time that I have lived at Clapton, yet it has not exempted me not only from the worst suspicions, but very gross insults. A very friendly and innocent club, which I found in the place, has been considered as *Jacobin* chiefly on my account; and at one time there was cause of apprehension that I should have been brought into danger for lending one of Mr. Paine's books. But with some difficulty the neighbourhood was satisfied that I was innocent.

As nothing had been paid to me on account of damages in the riot, when I published the second part of my *Appeal* to the public on the subject, it may be proper to say, that it was paid some time in the beginning of the year 1793, with interest only from the first of January of the same year, though the injury was received in July, 1791; when equity evidently required, that it ought to have been allowed from the time of the riot, especially as, in all the cases, the allowance was far short of the loss. In my case it fell short, as I have shewn, not less than two thousand pounds. And the losses sustained by the other sufferers far exceeded mine. Public justice

tice also required that, if the forms of law, local enmity or any other cause, had prevented our receiving full indemnification, it should have been made up to us from the public treasury; the great end of all civil government being protection from violence, or an indemnification for it. Whatever we might in equity claim, the country owes us, and, if it be just, will some time or other pay, and with interest.

I would farther observe, that since, in a variety of cases, money is allowed where the injury is not of a pecuniary nature, merely because no other compensation can be given, the same should have been done with respect to me, on account of the destruction of my manuscripts, the interruption of my pursuits, the loss of a pleasing and advantageous situation, &c. &c. and had the injury been sustained by a *clergyman*, he would, I doubt not, have claimed, and been allowed, very large damages on this account. So far, however, was there from being any idea of the kind in *my* favour, that my counsel advised me to make no mention of my manuscript *Lectures on the Constitution of England*, a work about as large as that of Blackstone (as may be seen by the syllabus of the particular lectures, sixty-three in all, published

ed in the first edition of my *Essay on a Course of liberal Education for civil and active Life)* because it would be taken for granted that they were of a seditious nature, and would therefore have been of disservice to me with the jury. Accordingly they were, in the account of my losses, included in the article of so much *paper*. After these losses, had I had nothing but the justice of my country to look to, I must have sunk under the burden, incapable of any farther exertions. It was the seasonable generosity of my friends that prevented this, and put it in my power, though with the unavoidable loss of near two years, to resume my former pursuits.

A farther proof of the excessive bigotry of this country is, that, though the clergy of Birmingham resenting what I advanced in the first part of my *Appeal*, replied to it, and pledged themselves to go through with the enquiry along with me, till the whole truth should be investigated, they have made no reply to the *Second Part of my Appeal*, in which I brought specific charges against themselves, and other persons by name, proving them to have been the promoters and abettors of the riot; and yet they have as much respect shown to them as ever, and the country

country at large pays no attention to it. Had the clergy been the injured persons, and Dissenters the rioters, unable to answer the charges brought against them, so great would have been the general indignation at their conduct, that I am persuaded it would not have been possible for them to continue in the country.

I could, if I were so disposed, give my readers many more instances of the bigotry of the clergy of the chnrch of England with respect ro me, which could not fail to excite, in generous minds, equal indignation and contempt; but I forbear.* Had I, however, foreseen what I am now witness to, I certainly should not have made any attempt to replace my library or app aratus,and I soon repented of having done it. But this being done, I was willing to make some use of both before another interruption of my pursuits. I began to philosophize, and make experiments, rather late in life, being

* At a dinner of all the Prebendaries of a cathedral church, the conversation turning on the riots in Birmingham, and on a clergyman having said that if I were mounted on a pile of my publications, he would set fire to them, and burn me alive, they all declared that they would bo ready to do the same.

being near forty, for want of the necessary means of doing any thing in this way; and my pursuits have been much interrupted by removals (never indeed chosen by myself, but rendered necessary by circumstances) and my time being now short, I hoped to have had no occasion for more than one, and that a final, remove. But the circumstances above mentioned have induced me, though with great and sincere regret, to undertake another, and to a greater distance than any that I have hitherto made.

I profess not to be unmoved by the aspect of things exhibited in this discourse. But notwithstanding this, I should willingly have awaited my fate in my native country, whatever it had been, if I had not had sons in America, and if I did not think that a field of public usefulness, which is evidently closing upon me here, might open to more advantage there.

I own also that I am not unaffected by such unexampled punishments as those of Mr. Muir and my friend Mr. Palmer, for offences, which, if, in the eye of reason, they be any at all, are slight, and very insufficiently proved; a measure so subversive of that

freedom

freedom of speaking and acting, which has hitherto been the great pride of Britons. But the sentence of Mr. Winterbotham, for delivering from the pulpit what I am persuaded he never did deliver, and which, similar evidence might have drawn upon myself, or any other dissenting minister, who was an object of general dislike, has something in it still more alarming*. But I trust that conscious innocence

* I trust that the friends of liberty, especially among the Dissenters, will not fail to do every thing in their power to make Mr. Winterbotham's confinement, and also the sufferings of Mr. Palmer and his companions, as easy to them as possible. Having been assisted in a season of persecution myself, I should be very ill deserving of the favours I have received, if I was not particularly desirous of recommending such cases as theirs to general consideration. Here difference in religious sentiment is least of all to be attended to. On the contrary, let those who in this respect differ the most from Mr. Winterbotham, which is my own case, exert themselves the most in his favour. When men of unquestionable integrity and piety suffer in consequence of acting (as such persons always will do) from a principle of *conscience*, they must command the respect even of their enemies, if they also act from principle, though they be thereby led to proceed in an opposite direction.

The case of men of education and reflection (and who act from the best intentions with respect to the community) committing what only *state policy* requires to be considered as *crimes*, but which are allowed on

nocence would support me as it does him, under whatever prejudiced and violent men might *do* to me, as well as *say* of me. But I see no occasion to expose myself to danger without any prospect of doing good, or to continue any longer in a country in which I am so unjustly become the object of general dislike, and not retire to another, where I have reason to think I shall be better received. And I trust that the same good Providence which has attended me hitherto, and made me happy in my present situation, and all my former ones, will attend and bless me in what may still be before me. In all events, *The will of God be done.*

I cannot refrain from repeating again, that I leave

---

on all hands to imply no moral turpitude, so as to render them unfit for heaven and happiness hereafter, is not to be confounded with that of common felons. There was nothing in the conduct of Louis XIV. and his ministers, that appeared so shocking, so contrary to all ideas of justice, humanity and decency, and that has contributed more to render their memory execrated, than sending such men as Mr. Marolles, and other eminent Protestants, who are now revered as saints and martyrs, to the galleys, along with the vilest miscreants. Compared with this, the punishment of death would be mercy. I trust that, the Scots in general will think these measures a disgrace to their country.

leave my native country with real regret, never expecting to find any where else society so suited to my disposition and habits, such friends as I have here (whose attachment has been more than a balance to all the abuse I have met with from others) and especially to replace one particular Christian friend, in whose absence I shall, for some time at least, find all the world a blank. Still less can I expect to resume my favourite pursuits, with any thing like the advantages I enjoy here. In leaving this country I also abandon a source of maintenance, which I can but ill bear to lose. I can, however truly say, that I leave it without any resentment, or ill-will. On the contrary, I sincerely wish my countrymen all happiness; and when the time for reflection (which my absence may accelerate) shall come, they will, I am confident, do me more justice. They will be convinced that every suspicion they have been led to entertain to my disadvantage has been ill founded, and that I have even some claim to their gratitude and esteem. In this case, I shall look with satisfaction to the time when, if my life be prolonged, I may visit my friends in this country; and perhaps I may, notwithstanding

my

my removal for the present, find a grave (as I believe is naturally the wish of every man) in the land that gave me birth."

On the 8th day of April 1794, my father set sail from London, and arrived at New-York on the 4th of June, where he staid about a fortnight. Many persons went to meet him upon his landing, and while he staid at New-York he received addresses from various Societies, and great attention from many of the most respectable persons in the place. From thence he proceeded to Philadelphia, where he received an address from the American Philosophical Society. Independent of the above marks of respect, he was chosen by an unanimous vote of the Trustees of the University of Philadelphia, professor of Chemistry. He was likewise invited to return and stay at New-York, and open an Unitarian place of worship, which was to have been provided for him, and also to give Lectures on Experimental Philosophy to one hundred subscribers at ten dollars each. These invitations indeed he did not receive until he had been settled some little time at Northumberland. These are sufficient proofs that the citizens of this country were not insensible to

his merit as a Philosopher, and that they esteemed him for the part he took in the politics of Europe. That he was not invited immediately on his arrival to preach either at New-York or Philadelphia, was not from any want of respect for his character, but because Unitarianism was in a manner unknown, and by many ignorantly supposed to have some connection with infidelity. The proper evidences of christianity, the corruptions it has suffered, the monstrous additions that have been engrafted on its primitive simplicity, and the real state of the opinions of christians in the first ages of the church, were subjects that had hardly ever been discussed in this country. The controversies that had been carried on in England had not awakened attention here, and therefore though my father was known as having suffered in consequence of his opposition to the established religion of his country, yet his particular opinions were little understood. As his religious tenets became more known, these prejudices wore away, and independent of the proposal to open a place of Unitarian worship at New-York, mentioned above, I shall have occasion to state the great reason he had to be satisfied with the testimonies of respect

respect paid to him, by the most eminent persons in the country, not merely in his character as a Philosopher, but as a preacher of the Gospel.

About the middle of July 1794 my father left Philadelphia for Northumberland, a town situated at the confluence of the North-East and West branches of the Susquehanna, and about 130 miles North-West of Philadelphia. I, and some other English gentlemen, had projected a settlement of 300,000 acres of land, about fifty miles distant from Northumberland. The subscription was filled chiefly by persons in England. Northumberland being at that time the nearest town to the proposed settlement, my father wished to see the place, and ascertain what conveniencies it would afford should he incline either to fix there permanently, or only until the settlement should be sufficiently advanced for his accommodation; he was induced likewise to retreat, at least for the summer months, into the country, fearing the effects of the hot weather in such a city as Philadelphia. He had not, as has been erroneously reported, the least concern in the projected settlement. He was not consulted in the formation of the plan of it, nor had he come to any determina-

tion to join it had it been carried into effect.

The scheme of settlement was not confined to any particular class or character of men, religious, or political. It was set on foot to be as it were a rallying point for the English, who were at that time emigrating to America in great numbers, and who it was thought, would be more happy in society of the kind they had been accustomed to, than they would be, dispersed, as they now are, through the whole of the United States. It was farther thought, that by the union of industry and capital, the wilderness would soon become cultivated and equal to any other part of the country in every thing necessary to the enjoyment of life. To promote this as much as possible, the original projectors of that scheme reserved only a few shares for themselves, for which they paid the same as those who had no trouble or expence either in forming the plan, or carrying it into execution. This they did, with a view to take away all source of jealousy, and to increase the facility of settlement, by increasing the proportion of settlers to the quantity of land to be settled. Fortunately for the original proposers, the scheme was abandoned. It might and would have

have answered in a pecuniary point of view, as the land now sells at double and treble the price then asked for it, without the advantages which that settlement would have given rise to; but the generality of Englishmen come to this country with such erroneous ideas, and, unless previously accustomed to a life of labour, are so ill qualified to commence cultivation in a wilderness, that the projectors would most probably have been subject to still more unfounded abuse than they have been, for their well meant endeavours to promote the interests of their countrymen.

The scheme of settlement thus failing, for reasons which it is not necessary now to state, my father, struck with the beauty of the situation of Northumberland, which is universally allowed to be equal if not superior to any in the state; believing that, from the nature of its situation, it was likely to become a great thoroughfare, and having reason to consider it as healthy as it was pleasant, the intermittents to which it has latterly been subject being then unknown, determined to settle there. Before he came to this resolution however, he had the offer of the Professorship of Chemistry in the University of

Pennsylvania, before mentioned, which would probably have yielded him 3000 dollars per annum, there being generally about 200 students in Medicine of whom about 150 attend the Chemical Lectures; as likewise the offer of a situation as Unitarian Preacher and Lecturer in Natural Philosophy as I have likewise mentioned before. At that time he had no inducement to settle at Northumberland contrary to his inclination, as his books and apparatus were still at Philadelphia, his sons had not fixed upon any place of settlement for themselves, and neither he, nor they, had purchased a single foot of land in the town or the neighbourhood of it.

The following reasons among others induced him to prefer a country to a city life. He thought that if he undertook the duties of a professor, he should not be so much at liberty to follow his favourite pursuits as he could wish, and that the expence of living at Philadelphia or New-York would counterbalance the advantages resulting from his salary; and indeed, at that time he had no occasion to attend to any pecuniary considerations, as he believed his income, calculating upon his property in the French funds (which however from circumstances not necessary

to

to be stated in this place, never produced him any thing,) to be more than equal to his wants; but what had greater weight with him than any thing else was that my mother, who had been harrassed in her mind ever since the riots at Birmingham, thought that by living in the country, at a distance from the cities, she should be more likely to obtain that quiet of which she stood so much in need.

Soon after his settlement at Northumberland, many persons, with a view that his qualifications as an instructor of youth should not be wholly lost to the country, concurred in a plan for the establishment of a college at Northumberland. To this scheme several subscribed from this motive alone. Many of the principal landholders, partly from the above and partly from motives of interest, contributed largely both in money and land, and there was a fair prospect, from the liberal principles upon which it was founded, that it would have been of very great advantage to the country. My father was requested to draw up a plan of the course of study he would recommend, as well as the rules for the internal management of the institution, and he was appointed President. He however declined receiving any emolument,

lument, and proposed giving such lectures as he was best qualified for, *gratis;* in the same manner as he had done at Hackney, and he meant to have given to the institution the use of his library and apparatus, until the students could have been furnished with them by means of the funds of the college. In consequence of the unexpected failure of some of the principal contributors, the scheme fell through at that time, and little more was done during my father's life time than to raise the shell of a convenient building.

I shall in this place state, though I shall anticipate, in so doing, that in the year 1803 a vacancy occurred in the University of Pennsylvania, by the death of Dr. Euen, Principal of that institution. It was intimated to my father by many of the Trustees, that in case he would accept of the appointment, there was little doubt of his obtaining it; Mr. M'Kean, the present governor of the State of Pennsylvania, being among others particularly anxious that he should accept of it. In addition to the reasons that had induced him to decline the offer of the Professorship of Chemistry were to be added the weak state of his health, which would have made the idea of his having any serious engagement to fulfil, very irksome to him; he accordingly declined it.

He

He had frequent intimations of other proposals of a similar nature that would have been made to him, had it not become generally known, that he could not accede to them from their being inconsistent with the plan of life he had laid down for himself.

I have been thus particular in the account of his reasons for settling at Northumberland, and of the different inducements offered to him to fix elsewhere, to do away the erroneous reports respecting the former, and likewise to counteract the idea that has been so industriously circulated in England, that his abilities were undervalued, that the bigotry and prejudice he had to encounter in this country, were greater than were opposed to him in England; that his life was in consequence rendered uncomfortable, and that if he could, he would have been glad to have returned to his native country, but was restrained by a sense of shame. Some colour was given to these reports by many of his countrymen who, from motives best known to themselves, perhaps thinking thereby to excuse the inconsistency of their own conduct, corroborated the accounts, though many of them had never seen my father in this country, and had no authority whatever for assertions which were entirely

entirely calumnies. Some currency was also given to the statement, by the false and injurious accounts published by the Duke de Liancount, whose book if I may judge of it by that part which treats of Pennsylvania, and of this neighbourhood in particular, is not entitled to the least credit, being false in almost every particular. This my father himself has stated in a letter addressed to him.

The writer, understanding the language of the country but very imperfectly, must necessarily have been liable to many mistakes; nor is it to be wondered at that a man who details all the tittle tattle of every table to which he is invited, and who can basely convert the hospitable reception he meets with in a strange country, into the means of turning into ridicule those who shewed him attention and meant to serve him, should be even capable of fabricating and circulating gross and injurious falsehoods respecting individuals. I should disgrace myself, in my opinion, and still more should I disgrace the high situation which my father held in the esteem of the public, were I in this work to enter into any further consideration of his attack on my father's character, satisfied that it is beyond the reach of his falsehoods and unprovoked malevolence.

My

My father would, no doubt, have been glad to have returned to England, and have enjoyed the society of his old and much valued friends; he would have rejoiced to have been nearer the centre of the Arts and Sciences; to have been joined again to his congregation and resumed his duties as a Christian Preacher; he would have been glad at the close of life, as he expresses himself, "to have found a grave in the land that gave him birth;" but this was impossible: and no person can read the preface to his Fast Sermon, quoted above, but must be convinced of it. Though he raised the credit of his native country by the brilliancy, the extent and the usefulness of his discoveries in different branches of science; though during his whole life he inculcated principles of virtue and religion, which the government pretended at least to believe were necessary to the well being of the state; though in no one single act of his life had he violated any law of his country or encouraged others to do so, what was the treatment he met with in that land of boasted civilization, and at the close of the 18th Century? It is sufficiently known, and will, as it ought to do, affect the character

racter of the nation at large. Therefore, though he could have forgotten and forgiven all that was past, though the above mentioned motives would have had great weight in inducing him to return, yet there was no reason to expect that he should meet hereafter with better treatment than he had already experienced; and in consequence of this fixed persuasion he never entertained the idea of returning to live in England. He frequently talked indeed of returning to visit his friends; but when peace took place and he could have gone with safety, so comfortably was he settled in this country, and such was his opinion of the state of things in England, that he abandoned even the idea of a temporary journey thither, altogether.

But supposing the above obstacles had not existed to his return to his native country, he had no reason to be, nor was he, dissatisfied with his reception here. Independent of the attentions paid to him upon his first arrival in this country, he continued to receive marks of respect from bodies of men, and from individuals of various opinions in religion and politics, to whom he had been all his life before an utter stranger. Little reason therefore have his countrymen to represent his reception in America as une-

qual

qual to his merits, or to calumniate the general character of the people here. His discoveries did not add to the credit of America as they had done to that of England, yet he was not obliged to withdraw his name from its Philosophical Society, disgusted with its illiberal treatment of himself and his friends. The Americans, comparatively speaking, had little opportunity of judging of his zeal for the real interests of religion, yet he was suffered to live in peace; and this country has not been disgraced by the destruction of a library and apparatus uniformly dedicated to the promotion of Science, and the good of mankind. It will be said that there were not such interests to oppose in America as in England. It is true, and it proves that the Americans have done well not to create such interests, and that the placing all the religious sects upon the same footing with respect to the government of the country, has effectually secured the peace of the community, at the same time that it has essentially promoted the interests of truth and virtue.

Being now settled at Northumberland with his mind at peace, and at ease in his circumstances, he seriously applied himself to those studies which he

he had long heen compelled to desist from, and which he had but imperfectly attended to while he resided at Hackney. It is true that he spent his time there very agreeably, in a society of highly valued friends; but he did little compared to what he effected while he was at Birmingham, or what he has done during his residence here, owing to his time being very much broken in upon at Hackney by company. To prove how much he did in this country it is only necessary to refer to the list of the publications which he presented to the world in various branches of science, in theology and general literature. Here as in England, though more at leisure than formerly, he continued to apportion his time to the various occupations in which he was engaged, and strictly adhered to a regular plan of alternate study and relaxation, from which he never materially deviated.

It was while my father was at the academy that he commenced a practice which he continued until within three or four days of his death, of keeping a diary, in which he put down the occurrences of the day; what he was employed about, where he had been, and particularly an exact account of what he had

had been reading, mentioning the names of the authors, and the number of pages he read, which was generally a fixed number, previously determined upon in his own mind. He likewise noted down any hints suggested by what he read in the course of the day. It was his custom at the beginning of each year to arrange the plan of study that he meant to pursue that year, and to review the general situation of his affairs, and at the end of the year he took an account of the progress he had made, how far he had executed the plan he had laid down, and whether his situation exceeded or fell short of the expectations he had formed.

This practice was a source of great satisfaction to him through life. It was at first adopted as a mode of regulating his studies, and afterwards continued from the pleasure it gave him. The greater part of his diaries were destroyed at the riots at Birmingham, but there are still extant those for the year 1754, 1755 and several of the subsequent years.

As it will serve to shew the regularity with which he pursued his studies, and may possibly be instructive as well as amusing to the reader, I shall give a specimen of the manner in which he spent a year

while he was at the academy, at Daventry, and for that purpose shall select his diary for the year 1755 when he was in his 22d year. The diary contains a particular account of what he read and wrote each day, and at different periods of the year he sums up in the following manner, the progress he had made in improvement, which I give as entered at the end of the diary.

Business done in January, February and March.

Practical.

Howe's blessedness of the righteous; Bennet's pastoral care; Norris's letters and some sermons.

Controversial.

Taylor on Atonement; Hampton's Answer; Sherlock's discourses Vol. 1; Christianity not founded in Argument; Doddridge's Answer; Warburton's divine legation; Benson on the first planting of Christianity; King's Constitution of the Primitive Church.

Classics.

Josephus, Vol. 1, from page 390 to 770; Ovid's Metamorphoses to page 139; Tacitus's History, Life of Agricola, and Manners of the Germans.

Scriptures.

Scriptures.

John the Evangelist, the Acts of the Apostles the Epistles to the Romans, Galatians, Ephesians, 1st and 2d Corinthians, in Greek; Isaiah to the 8th chapter, in Hebrew.

Mathematics.

Maclaurin's Algebra to part 2d.

Entertaining.

Irene; Prince Arthur; Ecclesiastical characters; Dryden's fables; Peruvian tales; Voyage round the world; Oriental tales; Massey's travels; Life of Hai Ebn Yokdam; History of Abdallah.

Composition.

A Sermon on the Wisdom of God; An Oration on the means of Virtue; 1st Vol. of the Institutes of Natural and Revealed Religion.

Business done from April 1st to June 23d.

Practical.

Watts's Catechism, and discourses on Catechizing; Fenelon's spiritual works Vol. 1st and half of Vol. 2d; Saurin's Sermons a few; Thomas a Kempis Book 1st to ch. 21; Cotton Mather's life; Jenning's on preaching Christianity.

Controversial

Towgood, Gill and Breckell on Baptism; Le Clerc on Inspiration; Whiston's Historical preface; Emlyn's narrative and humble enquiry; Apostolical Constitutions; Newton on the prophecies; Winder's History of knowledge; Hoadly on the Sacrament; Lowman on the Revelation; Moral Philosopher; Hume's Political discourses; Middleton's fathers of the four first centuries; Middleton and Waterland's controversy. ——— on the Demoniacs; Goodrich's display of Human Nature.

Classics.

Cicero's 1st. Phillippic.

Historical.

Universal History Vol. 15 and 16 and to page 488 of the 17th.

Composition.

Second Vol. of the Institutes of Natural and Revealed Religion; wrote an article on Edwards's translation of the Psalms for the review.

From June 23d to September 1.

Practical Writers.

Thomas a Kempis from Ch. 21 of Book 1st; Hartley on Man vol. 2d. May's Prayers. Holland's Sermons.

Scriptures.

Scriptures.

From the 1st Epistle of Timothy to the Revelations, and the Gospels of Matthew, Mark, and Luke, in the Greek Testament; The books of Genesis, Exodus, and Leviticus, in the Hebrew Bible.

Classics.

Ovid from Book 9th; Demosthenes 1st Phillippic and 3 Olynthiacs; Herodotus Book 1st; Homer's Iliad, Book 1, 2, 3; Sallust.

History.

Universal History from Vol. 17 p. 488 to the end of Vol. 18. Neal's History of the Puritans 4 Volumes.

Philosophy.

The Anatomical Articles in the Universal Dictionary, several principal Agebraic ones, and all the letter A.

Composition.

12 Sermons.

Business done in September.

Practical.

Holland's Sermons, Vol. 2d; Doddridge's family Expositor Vol. 1.

Scriptures.

John the Evangelist, in Greek.

Numbers, and to the 16th Chapter in Deuteronomy in Hebrew.

Classics.

Homer's Iliad, 12 books.

Mathematical.

Euclid, Lib. 1, 2, 3.

History.

Universal History, Vol. 19th.

Miscellaneous.

Mason's Student; One of Shakespeare's plays.

Composition.

4 Sermons.

Business done in October.

Practical.

Doddridge's Expositor Vol. 2d; Common Prayer Book; Fordyce's Sermons on public Institutions.

Scriptures.

Deuteronomy from Ch. 16 to the end; Ecclesiastes and Solomon's Song in Hebrew and Greek.

Classics.

Homer's Iliad, Book P to the end.

Mathematical.

Euclid, Lib, 4, 5, 6.

Histori-

Historical.

Universal History, Vol. 20th.

Miscellaneous.

5 Shakespeares Plays.

Composition.

3 Sermons.

Business done in November.

Practical.

Abernethy's Practical Sermons.

Scriptures.

Job, in Hebrew and the Septuagint.

Philosophy, Mathematics and Chemistry.

Euclid Lib. 11 and 12 slightly; Boerhave's Theory of Chemistry a good part of Vol. 1st; Rowning's Philosophy half of Vol. 1st.

Classics.

Francis's Horace, Odes 4 books.

History.

Universal History part of Vol. 3d; Jewish Antiquities. History of the Council of Trent to page 133. Anson's voyage by Walter.

Plays.

4 of Shakespeare's plays.

Composition.

2 Sermons.

Business done in December.

Practical.

Abernethy's Posthumous sermons Vol. 2d; Clarke's sermons Vol. 1st. Patric on Ecclesiastes.

Scriptures.

Psalms, in the Hebrew and Septuagint.

Philosophy.

Rowning's Philosophy part 2d and 3d.

Classics.

Francis's Horace Vol. 2 and 3.

Miscellaneous and Entertaining.

Malcolm on Music, half; 4 Shakespeare's plays. Half of the 1st Vol. of the Rambler.

Popes Ethic Epistles, a few.

History.

Paul's Council of Trent, to page 476; Life of the Duke of Marlborough.

Composition.

4 Sermons.

It will be seen by this extract from his diary, that his studies were very varied, which, as he was always persuaded, enabled him to do so much. This he constantly attended to through life; his chemical and philosophical pursuits serving as a kind of relaxation

laxation from his theological studies. His miscellaneous reading, which was at all times very extensive, comprizing even novels and plays, still served to increase the variety. For many years of his life, he never spent less than two or three hours a day in games of amusement, as cards and backgammon; but particularly chess—at which he and my mother played regularly three games after dinner, and as many after supper. As his children grew up, chess was laid aside for whist or some round game at cards, which he enjoyed as much as any of the company. It is hardly necessary to state that he never played for money, even for the most trifling sum.

To all these modes of relieving the mind, he added bodily exercise. Independent of his laboratory furnishing him with a good deal, as he never employed an operator, and never allowed any one even to light a fire, he generally lived in situations which required his walking a good deal, as at Calne, Birmingham and Hackney. Of that exercise he was very fond. He walked well, and his regular pace was four miles an hour. In situations where the necessity of walking was not imposed upon him, he worked in his garden as at Calne,

when

when he had not occasion to go to Bowood; at Northumberland in America, he was particularly attached to this exercise.

But what principally enabled him to do so much was regularity, for it does not appear that at any period of his life he spent more than six or eight hours per day in business that required much mental exertion. I find in the same diary, which I have quoted from above, that he laid down the following daily arrangement of time for a minister's studies: Studying the Scriptures 1 hour. Practical writers 1-2 an hour. Philosophy and History 2 hours. Classics 1-2 an hour. Composition 1 hour—in all 5 hours. He adds below "All which may be "conveniently dispatched before dinner, which leaves "the afternoon for visiting and company, and the "evening for exceeding in any article if there be "occasion. Six hours not too much, nor seven."

It appears by his diary that he followed this plan at that period of his life. He generally walked out in the afternoon or spent it in company. At that time there was a society or club that assembled twice a week, at which the members debated questions, or took it in turn to deliver orations, or read es-

says

says of their own composition. When not attending these meetings, he most generally appears to have spent the evening in company with some of the students in their chambers.

It was by the regularity and variety of his studies, more than by intenseness of application, that he performed so much more than even studious men generally do. At the time he was engaged about the most important works, and when he was not busily employed in making experiments, he always had leisure for company, of which he was fond. He never appeared hurried or behind hand. He however never carried his complaisance so far as to neglect the daily task he had imposed upon himself; but as he was uniformly an early riser, and dispatched his more serious pursuits in the morning, it rarely happened but that he could accomplish the labours assigned for the day, without having occasion to withdraw from visitors at home, or society abroad, or giving reason to suppose that the company of others was a restraint upon his pursuits.

This habit of regularity, extended itself to every thing that he read, and every thing he did that was susceptible of it. He never read a book with-

without determing in his own mind when he would finish it. Had he a work to transcribe, he would fix a time for its completion. This habit increased upon him as he grew in years, and his diary was kept upon the plan I have before described, till within a few days of his death.

To the regularity and variety of his studies, must he added a considerable degree of Mechanical contrivance, which greatly facilitated the execution of many of his compositions. It was however most apparent in his laboratory, and displayed in the simplicity and neatness of his apparatus, which was the great cause of the accuracy of his experiments, and of the fair character which he acquired as an experimental chemist. This was the result in the first instance of a necessary attention to œconomy in all his pursuits, and was afterwards continued from choice, when the necessity no longer existed. I return from this digression which I thought necessary to give the reader a general view of my father's occupations, and his manner of spending his time, to the circumstances attending the remaining years of his life.

At his first settling at Northumberland, there was

no

no house to be procured that would furnish him with the conveniencies of a library and laboratory in addition to the room necessary for a family. Hence in the beginning of the year 1795, being then fixed in his determination to move no more, he resolved upon building a house convenient for his pursuits. During the time the house was building, he had no convenience for making experiments more than a common room afforded, and he was thereby prevented from doing much in this way. Still, he ascertained several facts of importance in the year 1795 on the Analysis of Atmospheric Air, and also some in continuation of those on the generation of air from water.

He had however leisure and opportunity for his other studies and in 1795 he published observations on the increase of infidelity and he continued his Church History from the fall of the Western Empire to the reformation.

In the spring of 1796 he spent three months at Philadelphia and delivered there a set of discourses on the Evidences of Revelation, which he composed with a view to counteract the effect produced by the writings of unbelievers, which, as might be expected,

was

was very great in a country where rational opinions in religion were but little known, and where the evidences of revelation had been but little attended to. It was a source of great satisfaction to him, and what he had little previous reason to expect, that his lectures were attended by very crowded audiences, including most of the members of the congress of the United States at that time assembled at Philadelphia, and of the executive officers of the government. These discourses which, in a regular and connected series, placed Christianity, and the evidences of its truth, in a more clear and satisfactory point of view than it had been usually considered in this country, attracted much attention, and created an interest in the subject which there is reason to believe has produced lasting effects. My father received assurances from many of the most respectable persons in the country, that they viewed the subject in a totally different light from what they had before done, and that could they attend places of worship, where such rational doctrines were inculcated, they should do it with satisfaction.

As my father had through life considered the office of a Christian minister as the most useful and honourable of any, and had always derived the greatest satisfac-

satisfaction from fulfilling its duties, particularly from catechizing young persons, the greatest source of uneasiness therefore to him at Northumberland was, that there was no sufficient opportunity of being useful in that way. Though he was uniformly treated with kindness and respect by the people of the place, yet their sentiments in religion were so different from his own, and the nature and tendency of his opinions were so little understood, that the establishment of a place of unitarian worship perfectly free from any calvinistic or Arian tenet, was next to impossible. All therefore that he could do in that way was, for the two or three first years, to read a service either at his own or at my house, at which a few (perhaps a dozen) English persons were usually present, and in time, as their numbers increased he made use of a school room near his house, where from twenty to thirty regularly attended, and among them some of the inhabitants of the place, who by degrees began to divest themselves of their prejudices with respect to his opinions. However small the number of persons attending, he administered the Lord's supper, a rite upon which he always laid particular stress.

In the Autumn of 1795 he had the misfortune to lose

lose his youngest son, of whom being much younger than any of his other children, and having entertained the hopes of his succeeding him in his Theological and Philosophical pursuits he was remarkably fond. He felt this misfortune the more severely as it was the first of the kind he had experienced, and particularly as it had a visible effect upon my mother's health and spirits. He was however so constantly in the habit of viewing the hand of God in all things, and of considering every occurrence as leading to good, that his mind soon recovered its accustomed serenity, and his journey to Philadelphia mentioned above and the success which attended his first exertions in the cause of, what he deemed, pure and genuine christianity, led him to look forward with cheerfulness to the future, and gave him an energy in his pursuits, which was never exceeded in any part of his life. It was the same habit of viewing God as the author of all events, and producing good out of seeming evil, that enabled him to support himself so well under the greatest affliction that could possibly have befallen him, viz. the loss of his wife, my mother; who through life had been truly a help meet for him; supporting him under

all

all his trials and sufferings with a constancy and perseverance truly praise worthy, and who as he himself, in noting the event in his diary, justly observes, "was of a noble and generous mind and cared much for others and little for herself through life."

In the period between the above very afflicting events, though his conveniences for experimenting were not increased, owing to his house, and particularly his laboratory not being finished, he wrote a small treatise in defence of the doctrine of Phlogiston, addressed to the Philosophers in France. He likewise composed a second set of discourses of a similar kind to those delivered in Philadelphia the preceding winter. He preached and printed a sermon in defence of Unitarianism, and printed the first set of discourses, he compleated his Church History; he made additional observations on the increase of infidelity chiefly in answer to Mr. Volney; and drew up an Outline of all the Evidences in favour of Revelation.

In the spring of 1797 he again spent two or three months in Philadelphia, and delivered a second set of discourses, but partly from the novelty of the thing being done away, partly from the prejudices that be-

gan to be excited against him on account of his supposed political opinions, (for high-toned politics began then to prevail in the fashionable circles) and partly owing to the discourses not being so well adapted for a public audience, though necessary to set the comparative excellence of Christianity in its true light, they were but thinly attended in comparison to his former set. This induced him to give up the idea of preaching any more regular sets of discourses. He however printed them, as likewise a sermon he preached in favour of the Emigrants. He also composed at this time a third and enlarged edition of his Observations on the increase of infidelity, a controversy with Mr. Volney, a tract on the Knowledge of a Future state among the Hebrews, which, with the works he composed the year before, he printed as he found means and opportunity. He revised his Church History, began his Notes on the Scriptures, and his Comparison of the Institutions of Moses with those of the Hindoos.

Towards the end of 1797 and not before, his library and laboratory were finished. None but men devoted to literature can imagine the pleasure he derived from being able to renew his experiments with

every

every possible convenience, and from having his books once more arranged. His house was situated in a garden, commanding a prospect equal, if not superior, to any on the river Susquehanna, so justly celebrated for the picturesque views its banks afford. It was a singularly fortunate circumstance that he found at Northumberland several excellent workmen in metals, who could repair his instruments, make all the new articles he wanted in the course of his experimenting, as well as, he used to say, if not in some respects better than, he could have got them done in Birmingham; and in the society of Mr. Frederick Antis, the brother of Mr. Antis in England, and uncle of Mr. Latrobe the engineer, he derived great satisfaction. Mr. Antis was a man of mild and amiable manners, he possessed a very good knowledge of Mechanics the result of his own observation and reflection, and a fund of knowledge of many things which my father frequently found useful to resort to. The situation of Northumberland became abundantly more convenient than it was when he first came to the place. From there being no regular public post, there was now established a post twice a week to Philadelphia, and answers could be

received to letters within a week, and the communication so much increased between the two places, that the price of the carriage of goods was reduced from 11*s*.-3*d*. to 6*s*. per Cwt. the distance being 132 miles.

Thus conveniently situated, he resumed the same kind of life he led at Birmingham, experimenting the greater part of the day, the result of which he published in the Medical repository of New-York. Having compleated his Church History, he finished his Comparison of the Institutions of Moses with those of the Hindoos. He likewise proceeded as far as Leviticus in the design he had formed of writing Notes on all the books of Scripture, and made some remarks on the origin of all religions by Dupuis, but the greater part of the time that he spent in theology this year, was employed in recomposing the Notes on the New-Testament, which were destroyed at the riots.

In the course of the year 1799, he finished his Notes on all the books of Scripture, he published his Comparison of the Institutions of Moses with those of the Hindoos, he likewise printed his Defence of the doctrine of Phlogiston above mentioned, and the

greater

greater part of each day in the summer was employed in making the additional experiments he had projected.

It was in the year 1799, during Mr. Adams's administration, that my father had occasion to write any thing on the subject of politics in this country. It is well known to all his friends, that politics were always a subject of secondary importance with him. He however took part occasionally in the conversations on that subject; which every person has a right to do, and which, about the time my father left England, no person could avoid doing, as the subject engrossed so large a part of the conversation in almost every company. He always argued on the side of liberty. He was however in favour only of those changes that could be brought about by fair argument, and his speculations on the subject of British politics did not go further than a reform in Parliament, and no way tended, in his opinion, to affect the form of government, or the constitution of the kingdom, as vested in Kings, Lords and Commons. He used frequently to say, and it was said to him, that though he was an Unitarian in Religion he was in that country a Trinitarian in politics.

When he came to America, he found reason to change his opinions, and he became a decided friend to the general principles and practice of a compleatly representative government, founded upon universal suffrage, and excluding hereditary privileges, as it exists in this country. This change was naturally produced by observing the ease and happiness with which the people lived, and the unexampled prosperity of the country, of which no European, unless he has resided in it some time, and has observed the interior part of it, can be a competent judge. But with respect to England, he still remained anxious for its peace and prosperity, and though he had been so hardly used, and though he considered the administration of the country, if not instigating at least conniving at the riots, no resentment existed in his breast against the nation. In his feelings he was still an Englishman. Though he might speculatively consider that the mass of evil and misery had arisen to such a height in England, and in other European countries, that there was no longer any hope of a peaceable and gradual reform, yet, considering at the same time that the great body of the people, like the Negroes in the West-Indies,

were

were unprepared for the enjoyment of liberty in its full extent, and contemplating the evils necessarily attendant upon a violent change, he dreaded a revolution.

With respect to America he had never interfered publicly in politics, and never wrote an article that could be considered in that light in any respect, except one published in a newspaper called the *Aurora*, signed a *Quaker in Politics*, published on the 26th and 27th of February, 1798, and entitled Maxims of Political Arithmetic,* and so little did he interest himself in the politics of this country, that he seldom if ever perused the debates in Congress, nor was he much acquainted with any of the leading political characters except three or four, and with these he never corresponded but with Mr. Adams prior to his being chosen president, and Mr. Jefferson. He never was naturalized, nor did he take part directly or indirectly in any election. He persevered in the same sentiments even when he was under reasonable apprehension that he should be banished

* See Appendix, No. IV.

nished as an Alien : and though he advised his sons to be naturalized, saying it was what was daily done by persons who could not be suspected of wishing any ill to their native country, yet he would not; but said, that as he had been born and had lived an Englishman, he would die one let what might be the consequence.

About the year 1799, the friends of liberty in America were greatly alarmed by the advancement of principles disgraceful to America, and by a practice less liberal in many respects than under the monarchical form of the British government. Nothing else was the subject of conversation and my father who though never active in politics, at the same time never concealed his sentiments, uttered them freely in conversation, and they were of course opposed to the proceedings of the administration at the time. Added to this Mr. Thomas Cooper formerly of Manchester, and who at that time had undertaken for a short period, at the request of the printer, to edit a newspaper then printed at Northumberland, had published some very severe strictures on the conduct of the administration, which were soon after published in a pamphlet, under the title of Political Essays.

By

By many my father might be ignorantly supposed as the prompter on the occasion, as Mr. Cooper lived at that time with my father, and by those who knew better, it was made the ostensible ground of objection to my father, to conceal the real one. In truth he saw none of the essays until they were printed, nor was he consulted by Mr. Cooper upon any part of them. The consequence was, that all the bigotry and party zeal of that violent period was employed to injure him, and misrepresent his words and actions. He was represented as intriguing for offices for himself and his friend, and as an enemy to the government which they said protected him, while men who were themselves but newly naturalized, or the immediate descendants of foreigners, bestowed upon him the epithet of Alien, an epithet then used by the government party as a term of reproach, though the country was principally indebted to the capital, industry and enterprize of foreigners for the many improvements then carrying on. Such was the effect of all these slanderous reports, and such was the character of the administration, that it was intimated to my father, from Mr. Adams himself, that he wished he would abstain from saying any

any thing on politics, lest he should get into difficulty. The Alien law which was passed under that administration, was at that time in operation, and a man without being convicted of, or even positively charged with, any offence, might have been sent out of the country at a moment's warning, not only without a trial, but without the right of remonstrance. It was likewise hinted to my father as he has himself stated, that he was one of the persons contemplated when the law was passed, so little did they know of his real character and disposition. This occasioned my father to write a set of letters to the inhabitants of Northumberland; in which he expressed his sentiments fully on all the political questions at that time under discussion. They had the effect of removing the unfavourable impressions that had been made on the minds of the liberal and candid, and procured him many friends. Fortunately however the violent measures then adopted produced a compleat change in the minds of the people, and in consequence of it in the representation, proving by the peaceableness of it, the excellence of this form of government, and proving also that my father's sentiments, as well as Mr. Cooper's, were approved of by nine tenths of the people of the United States.

It

It is but justice however to mention that in the above remarks which have been made to represent my father's political character in its true light, and to account for his writing on the subject of politics, I do not mean to reflect on all the federalists, and that though my father considered them all as in error, yet he acknowledged himself indebted to many of that party for the most sincere marks of friendship which he had received in this country, and that not only from his opponents in politics, but likewise from many of the principal clergymen of various denominations in Philadelphia, and particularly during his severe illness in that city, when party spirit was at the highest, it being at the time of Mr. Jefferson's first election to the presidency.

As my father has given an account of those friends to whose kindness and generosity he was principally indebted from the commencement of his literary career, to the time of his coming to America, I think it my duty to follow his example, and to make on his part those acknowledgements which had he lived, he would have taken pleasure in making himself. To the Revd. Theophilus Lindsey, independent of the many marks of the most sincere friendship, which he was

constant-

constantly receiving, he was occasionally indebted for pecuniary assistance at times when it was most wanting. Independent of 50 £. per annum, which Mrs. Elizabeth Rayner allowed him from the time he left England, she left him by her will £. 2000 in the 4 per cents. Mr. Michael Dodson who is well known as the translator of Isaiah left him £. 500, and Mr. Samuel Salte left him 100 £. The Duke of Grafton remitted him aunually 40 £. Therefore though his expences were far greater than he expected, and though his house cost him double the sum he had contemplated, the generosity of his friends made him perfectly easy in his mind with respect to pecuniary affairs; and by freeing him from all care and anxiety on this head contributed greatly to his happiness, and to his successful endeavours in the cause of truth. Besides these instances of friendly attention, the different branches of his family have been, in various ways, benefited, in consequence of the respect paid to my father's character, and the affectionate regard shewn by his friends to all who were connected with him.

But what gave my father most real pleasure was the subscription, set on foot by his friends in England,

to

to enable him to print his Church History, and his Notes on all the Books of Scripture. The whole was done without his knowledge, and the first information he received on the subject was, that there was a sum raised sufficient to cover the whole expence.

About the time he died, some of his friends in England understood that he was likely to suffer a loss in point of income of £. 200 per annum. Without any solicitation, about forty of them raised the sum of £. 450, which was meant to have been continued annually while he lived. He did not live to know of this kind exertion in his favour. It is my duty however to record this instance of generosity, and I do it with pleasure and with gratitude. It likewise proves that though my father by the fearless avowal of his opinions created many enemies, yet that the honesty and independence of his conduct procured him many friends.

The first years subscription has been transmitted to America, to defray the expence of publishing his posthumous works.

In the year 1800 he was chiefly employed in experiments, and writing an account of them for various

publica-

publications. In this year also he published his treatise in defence of Phlogiston, he revised his Church History, the two first volumes of which are now reprinted with considerable additions, and he added to and improved his Notes on the Scriptures.

He spent some time in the spring of 1801 in Philadelphia, during his stay there he had a violent attack of fever which weakened him exceedingly, and from the effects of which he never perfectly recovered. Added to this the fever and ague prevailed at Northumberland and the neighbourhood, for the first time since his settlement at the place. He had two or three attacks of this disorder; which though they were not very severe, as he had never more than three fits at a time, retarded his recovery very much. He perceived the effect of his illness in the diminution of his strength, and his not being able to take as much exercise as he used to do. His spirits however were good, and he was very assiduous in making experiments, chiefly on the pile of Volta, the result of which he sent an account of to Nicholson's Journal and the Medical Repository.

In 1802 he began to print his Church History, in consequence of the subscription raised by his friends

in

in England as before stated. Besides printing three volumes of that work, he wrote and printed a treatise on Baptism, chiefly in answer to the observations of Mr. Robinson on the subject. He likewise made some experiments, and replied to some remarks of Mr. Cruikshank in defence of the Antiphlogistic theory.

I am now to describe the last scene of his life, which deserves the reader's most serious consideration, as it shews the powerful effect of his religious principles. They made him, not resigned to quit a world in which he no longer had any delight, and in which no hope of future enjoyment presented itself, but chearful in the certainty of approaching dissolution, and under circumstances that would by the world in general have been considered as highly enviable. They led him to consider death as the labourer does sleep at night as being necessary to renew his mental and corporeal powers, and fit him for a future state of activity and happiness. For though since his illness in Philadelphia in 1801 he had never recovered his former good state of health, yet he had never been confined to his bed a whole day by sickness in America until within two days of his death

death, and was never incapacitated for any pursuit that he had been accustomed to. He took great delight in his garden, and in viewing the little improvements going forward in and about the town. The rapidly increasing prosperity of the country, whether as it regarded its agriculture, manufactures, and commerce, or the increasing taste for science and literature, were all of them to him a source of the purest pleasure. For the last four years of his life he lived under an administration, the principles and practice of which he perfectly approved, and with Mr. Jefferson, the head of that administration, he frequently corresponded, and they had for each other a mutual regard and esteem. He enjoyed the esteem of the wisest and best men in the country, particularly at Philadelphia, where his religion and his politics did not prevent his being kindly and cheerfully received by great numbers of opposite opinions in both, who thus paid homage to his knowledge and virtue. At home he was beloved; and besides the advantages of an excellent library, to which he was continually making additions, and of a laboratory that was amply provided with every thing necessary for an experimental chemist,

mist, he was perfectly freed, as he had happily been through life, in consequence of my mother's ability and attention, from any attention to worldly concerns; considering himself, as he used to express himself, merely as a lodger, having all his time to devote to his theological and philosophical pursuits. He had the satisfaction of witnessing the gradual spread of his religious opinions, and the fullest conviction that he should prevail over his opponents in chemistry. He looked forward with the greatest pleasure to future exertions in both these fields, and had within the last month or six weeks been projecting many improvements in his apparatus, which he meant to make use of upon the return of warm weather in the spring. Notwithstanding, therefore, the many trials he underwent in this country, he had still great sources of happiness left, unalloyed by any apprehension of any material defect in any of his senses, or any abatement of the vigour of his mind. Consistent with the above was his declaration that, excepting the want of the society of Mr. L. Mr. B. and two or three other particular friends, which however was made up to him, in some, though in a small degree by their regular correspondence, he

had never upon the whole spent any part of his life more happily, nor, he believed, more usefully.

The first part of his illness, independent of his general weakness, the result of his illness in Philadelphia in 1801, was a constant indigestion, and a difficulty of swallowing meat or any kind of solid food unless previously reduced by mastication to a perfect pulp. This gradually increased upon him till he could swallow liquids but very slowly, and led him to suspect, which he did to the last, that there must be some stoppage in the œsophagus. Latterly he lived almost entirely upon tea, chocolate, soups, sago, custard puddings, and the like. During all this time of general and increasing debility, he was busily employed in printing his Church History, and the first volume of the Notes on Scripture; and in making new and original experiments, an account of which he sent to the American Philosophical Society in two numbers, one in answer to Dr. Darwin's observations on Spontaneous generation, and the other on the unexpected conversion of a quantity of the marine acid into the nitrous. During this period, likewise, he wrote his pamphlet of Jesus and Socrates compared, and re-printed his

Essay

Essay on Phlogiston. He would not suffer any one to do for him what he had been accustomed to do himself; nor did he alter his former mode of life in any respect, excepting that he no longer worked in his garden, and that he read more books of a miscellaneous nature than he had been used to do when he could work more in his laboratory, which had always served him as a relaxation from his other studies.

From about the beginning of November 1803, to the middle of January 1804, his complaint grew more serious. He was once incapable of swallowing any thing for near thirty hours; and there being some symtoms of inflammation at his stomach, blisters were applied, which afforded him relief; and by very great attention to his diet, riding out in a chair when the weather would permit, and living chiefly on the soft parts of oysters, he seemed if not gaining ground, at least not getting worse; and we had reason to hope that if he held out until spring as he was, the same attention to his diet with more exercise, which it was impossible for him to take on account of the cold weather, would restore him to health. He, however, considered his life as very

precarious, and used to tell the physician who attended him, that if he could but patch him up for six months longer he should be perfectly satisfied, as he should in that time be able to complete printing his works. The swelling of his feet, an alarming symptom of general debility, began about this time.

To give some idea of the exertions he made even at this time, it is only necessary for me to say, that besides his miscellaneous reading, which was at all times very great, he read through all the works quoted in his comparison of the different systems of the Grecian Philosophers with christianity, composed that work, and transcribed the whole of it in less than three months. He took the precaution of transcribing one day in long hand what he had composed the day before in short hand, that he might by that means leave the work complete as far as it went, should he not live to complete the whole. During this period he composed in a day his second reply to Dr. Linn.

About this time he ceased performing divine service, which he said he had never before known himself incapable of performing, notwithstanding he had been

been a preacher so many years. He likewise now suffered me to rake his fire, rub his feet with a flesh-brush, and occasionally help him to bed. In the mornings likewise he had his fire made for him, which he always used to do himself, and generally before any of the family was stirring.

In the last fortnight in January he was troubled with alarming fits of indigestion; his legs swelled nearly to his knees, and his weakness increased very much. I wrote for him, while he dictated, the concluding section of his New Comparison, and the Preface and Dedication. The finishing this work was a source of great satisfaction to him, as he considered it as a work of as much consequence as any he had ever undertaken. The first alarming symptom of approaching dissolution was his being unable to speak to me upon my entering his room on Tuesday morning the 31st of January. In his Diary I find he stated his situation as follows: "Ill all day—Not able to speak for near three hours." When he was able to speak he told me he had slept well, as he uniformly had done through the whole of his illness; so that he never would suffer me, though I frequently requested he would do it, to sleep in the

same room with him; that he felt as wall as possible; that he got up and shaved himself, which he never omitted doing every morning till within two days of his death; that he went to his laboratory, and then found his weakness very great; that he got back with difficulty; that just aftorward his grand-daughter, a child of about six or seven years old, came to him to claim the fulfilment of a promise he had made her the evening before, to give her a fivepenny bit. He gave her the money, and was going to speak to her, but found himself unable. He informed me of this, speaking very slowly a word at a time; and added, that he had never felt more pleasantly in his whole life than he did during the time he was unable to speak. After he had taken his medicine, which was bark and laudanum, and drank a bason of strong mutton broth, he recovered surprizingly, and talked with cheerfulness to all who called upon him, but as though he was fully sensible that he had not long to live. He consented for the first time that I should sleep in the room with him.

On Wednesday, February 1, he writes, "I was at times much better in the morning: capable of some business: continued better all day." He

spake

spake this morning as strong as usual, and took in the course of the day a good deal of nourishment with pleasure. He said, that he felt a return of strength, and with it there was a duty to perform. He read a good deal in Newcome's Translation of the New Testament, and Stevens's History of the War. In the afternoon he gave me some directions how to proceed with the printing his work in case he should die. He gave me directions to stop the printing of the second volume, and to begin upon the third, that he might see how it was begun, and that it might serve as a pattern to me to proceed by.

On Thursday, the 2d, he wrote thus for the last time in his Diary: "Much worse: incapable of business: Mr. Kennedy came to receive instructions about printing in case of my death." He sat up, however, a great part of the day, was cheerful, and gave Mr. Cooper and myself some directions, with the same composure as though he had only been about to leave home for a short time. Though it was fatiguing to him to talk, he read a good deal in the works above mentioned.

On Friday he was much better. He sat up a

good part of the day reading Newcome; Dr. Disney's Translation of the Psalms; and some chapters in the Greek Testament, which was his daily practice. He corrected a proof-sheet of the Notes on Isaiah. When he went to bed he was not so well: he had an idea he should not live another day. At prayer-time he wished to have the children kneel by his bedside, saying, it gave him great pleasure to see the little things kneel; and, thinking he possibly might not see them again, he gave them his blessing.

On Saturday, the 4th, my father got up for about an hour while his bed was made. He said he felt more comfortable in bed than up. He read a good deal, and looked over the first sheet of the third volume of the Notes, that he might see how we were likely to go on with it; and having examined the Greek and Hebrew quotations, and finding them right, he said he was satisfied we should finish the work very well. In the course of the day, he expressed his gratitude in being permitted to die quietly in his family, without pain, with every convenience and comfort he could wish for. He dwelt upon the peculiarly happy situation in which it had pleased the Divine Being to place him in life; and the great advantage

vantage he had enjoyed in the acquaintance and friendship of some of the best and wisest men in the age in which he lived, and the satisfaction he derived from having led an useful as well as a happy life.

On Sunday he was much weaker, and only sat up in an armed chair while his bed was made. He desired me to read to him the eleventh chapter of John. I was going on to read to the end of the chapter, but he stopped me at the 45th verse. He dwelt for some time on the advantage he had derived from reading the scriptures daily, and advised me to do the same; saying, that it would prove to me, as it had done to him, a source of the purest pleasure. He desired me to reach him a pamphlet which was at his bed's head, Simpson on the Duration of future Punishment. "It will be a source of satisfaction to you to read that pampnlet," said he, giving it to me, "It contains my sentiments, and a belief in them will be a support to you in the most trying circumstances, as it has been to me. We shall all meet finally: we only require different degrees of discipline, suited to our different tempers, to prepare us for final happiness." Upon Mr. —— coming into his room, he said, "You see, Sir, I am still living."

Mr.

Mr. —— observed, he would always live. "Yes," said he, "I believe I shall; and we shall all meet again in another and a better world." He said this with great animation, laying hold on Mr. ——'s hand in both his.

Before prayers he desired me to reach him three publications, about which he would give me some directions next morning. His weakness would not permit him to do it at that time.

At prayers he had all the children brought to his bed-side as before. After prayers they wished him a good night, and were leaving the room. He desired them to stay, spoke to them each separately. He exhorted them all to continue to love each other. "And you, little thing," speaking to Eliza, "remember the hymn you learned; 'Birds in their little nests agree,' &c. I am going to sleep as well as you: for death is only a good long sound sleep in the grave, and we shall meet again." He congratulated us on the dispositions of our children; said it was a satisfaction to see them likely to turn out well; and continued for some time to express his confidence in a happy immorality, and in a future state, which would afford us an ample field for the exertion of our faculties.

On

On Monday morning, the 6th of February, after having lain perfectly still till four o'clock in the morning, he called to me, but in a fainter tone than usual, to give him some wine and tincture of bark. I asked him how he felt. He answered, he had no pain, but appeared fainting away gradually. About an hour after, he asked me for some chicken broth, of which he took a tea-cup full. His pulse was quick, weak, and fluttering, his breathing, though easy, short. About eight o'clock, he asked me to give him some egg and wine. After this he lay quite still till ten o'clock, when he desired me and Mr. Cooper to bring him the pamphlets we had looked out the evening before. He then dictated as clearly and distinctly as he had ever done in his life the additions and alterations he wished to have made in each. Mr. Cooper took down the substance of what he said, which, when he had done, I read to him. He said Mr. Cooper had put it in his own language; he wished it to be put in his. I then took a pen and ink to his bed-side. He then repeated over again, nearly word for word, what he had before said; and when I had done, I read it over to him. "That is right; I have now done."

About

About half an hour after he desired, in a faint voice, that we would move him from the bed on which he lay to a cot, that he might lie with his lower limbs horizontal, and his head upright. He died in about ten minutes after we had moved him, but breathed his last so easy, that neither myself or my wife, who were both sitting close to him, perceived it at the time. He had put his hand to his face, which prevented our observing it."

The above account, which conveys but a very inadequate idea of the composure and chearfulnees of his last moments deserves the attention of unbelievers in general, particularly of Philosophical Unbelievers. They have known him to be zealous and active in the pursuit of Philosophical truths and to be ever ready to acknowledge any mistakes he may have fallen into. By the perusal of these Memoirs they have found that he gradually, and after much thought and reflection abandoned all those opinions which disgrace what is usually called christianity in the eyes of rational men and whose inconsistency with reason and common sense has most probably been the cause of their infidelity and of their total inattention to the evidences of christianity. These opinions he abandoned

doned, because he could not find them supported either in the Scriptures or in the genuine writings of the early christians. They must be sensible that the same desire for truth and the same fearless spirit of enquiry and the same courage in the open avowal of the most obnoxious tenets would have led him to have discarded religion altogether had he seen reason so to do, and there is little doubt but that he would have been subject to less obloquy by so doing than by exposing the various corruptions of christianity in the manner he did. They have seen however that in proportion as he attended to the subject his faith in christianity increased and produced that happy disposition of mind described in these Memoirs. The subject is therefore well deserving of their attention and they should be induced from so fair an example, and the weight due to my father's opinions, to make themselves fully acquainted with the arguments in favour of christianity before they reject it as an idle fable.

Many unbelievers have, no doubt, borne with great patience severe calamities; they have suffered death with great fortitude when engaged in a good cause, and many have courted death to serve their friends

friends or their country. It must however be allowed that there is no great merit in meeting death with fortitude when it cannot be avoided, and likewise that the above cases cannot be absolutely calculated upon, as there is no sufficient motive to account for their conduct. But upon a truly practical christian there is the greatest dependance to be placed for acting well in all the situations in which he may be found, his highest interest being connected with the performance of the greatest duties; and even supposing that many persons, who are not christians, from favourable circumstances attendant upon their birth and education, and from a naturally happy temperament of body and mind, may, and, it must be allowed do acquire a habit of disinterested benevolence and may in general be depended upon to act uniformly well in life, still the christian has a decided advantage over them in the hour of death, as to consider death as necessary to his entering upon a new and enlarged sphere of activity and enjoyment, is a privilege that belongs to him alone.

APPENDIX, NO. 1.

Of the discoveries in factitious Airs before the time of Dr. Priestley, and of those made by himself.

DR. PRIESTLEY has given a general though brief account* of what had been done by his predecessors in this department of experimental Philosophy, and Sir John Pringle in his discourse before the Royal Society on occasion of presenting Dr. Priestley with the Copley Medal in 1772† has entered expressly, and more fully into the history of pneumatic discoveries. The same subject was taken up about three years after by Mr. Lavoisier still more at large, in the introduction to his first Vol. of Physical and Chemical Essays, of which a translation was published by Mr. Henry of Manchester in 1776. It is unnecsssary to detail here what they have written on the history of these discoveries. It may

* In the beginning of his first vol. of experiments: it is an abridgment of Sir J. Pringle's discourse.

† Discourses p. 4.

may be observed that no mention is made by any of these gentlemen of an experiment of Mr. John Maud, in July 1736*, who procured (and confined) inflammable air from a solution of Iron in the vitriolic acid. Inflammable air had been procured from the White Haven coal mines, and exhibited to the Royal Society by Mr. James Lowther, but I do not recollect any notice of its having been collected from a solution of metals in acids, and its character ascertained before Mr. Maud's experiment; for Hales, though he procured both inflammable and nitrous air, did not examine their properties. But it is much more extraordinary that neither Sir John Pringle who was a Physician, or Mr. Lavoisier who was so much occupied under government, respecting the Theory of the formation, and the practice of manufacturing Saltpetre from Nitre beds, should not have known, or have noticed the five treatises of Mayow on chemical, phisiological and pathological subjects, published a century preceding. Mayow

* Martyn's abridgment of the Philosophical transactions v. 9. p. 396. I think Maud's experiment in 1736 likely to have suggested those of Mr. Cavendish in 1766.

yow is quoted by Hales,* by Lemery,† and by Brown-

* Vegetable Statics v. 2. p. 234.

† Mem. de l' Acad. Royale 1717 p. 48. On ne dit pourtant point trop sous quelle forme ce nitre se contient dans l'air, et Mayou, Auteur Anglois et grand defenseur du Nitre-Aèrien voulant èclaircir cette difficultè, suppose l'air impregnè par tout d'une espece de nitre metaphysique, qui ne merite pas trop d'être refutè, quoi-qu'il l'ait cependant ètè suffisamment par Barchusen et par Schelhamer. Le fondement de l'opinion du Nitre aèrien, c'est comme le rapporte Mayou lui mème, qu'apres avoir enlevè à une terre tout le Nitre qu'elle contenoit, si on l'expose ensuite à l'air pendant un certain tems elle en reprend de nouveau : il est vrai que si l'observation ètoit parfaitement telle qu'elle vient d'être rapportèe, on auroit une plus grande raison qu'on n'en a, de supposer dans l'air une très-grande quantite de nitre, et de mettre sur le compte de ce nitre aerien un grand nombre d'effets auquels il n'a certainement aucune part.

The experiment of Lemery mentioned in Dr. Watson's Essay on Nitre, is in p. 54 of the Mem. de l'acad. royale for 1717 not for 1731.

It sometimes happens to men whose genius far transcends the level of their day, to be from that very circumstance neither understood nor believed by their contemporaries. Until the discoveries of modern chemistry, who would have given Sir Isaac Newton credit for his conjecture that the Diamond was an inflammable substance? The fact which Lemery sneers at, the reproduction of nitre in the earth, is established beyond contradiction by the authors quoted by Dr. Watson

Brownrigg,* but though they appear to have read his work, it is evident that they knew not how to appreciate, or to profit by it. Haller† also refers to

---

son (Chem. Ess. v. 1 p. 318—321) and in Bowle's account of the nitre earths in Spain, and in Andreossi's memoir on the Saltpetre of Egypt. Though it is far from improbable that after lixiviation these earths may again become gradually impregnated with putrefying animal or vegetable matter to serve for the future crops of nitre.

* Philosophical transactions v. 55 p. 232.

† Dr. Priestley in his preliminary account of the discoveries and theories on respiration (Exp. on air v. 3 p. 356. abridged edit.) quotes Haller's great work on Physiology. Haller quotes Mayow in three or four places; but it is no wonder the quotations did not strike Dr. Priestley with any curiosity to examine Mayow's book, for Haller certainly did not understand his theory. For instance Lib. 8. § 13. Nitrum aereum. Si ad verum sensum nitri aerei hypothesis revocata fuisset parum utique ab eâ differt quam novissimè proposuimus. Nitrum quidem ipsum incautiosius olim Physiologi in aere obvolitare scripserunt, et ex pluviâ et nive colligi; idemque passim ex rupibus efflorescere (Sprat ex Henshaw p. 264 major cal. hum.) exque plantis et stercoribus educi (Fludd Niewentydt, 563-4. Mayow de nitro aereo. Lower de Corde c. 3. Thurston 52. 53. Besse Analyse tom 1 et en lettre en reponse à M. Helvet. 114.) id nitrum aiunt in pulmonibus ad sanguinem venire, et ab eo ruborem illum elegantem, et fermentationem (Mayow, Thurston penult. ess. T. 3 p. 265 et calorem sanguinis accedere aut vicissim sanguinem condensari.

Certainly

to him, and he is respectfully quoted by Blumenbach*: but his book nevertheless long remained in comparative obscurity. From their time Mayow has been neglected until his writings were noticed by Dr. Forster, in 1780,† and again announced as

---

Certainly the id nitrum, is not Mayow's. M. Rosel seems first to have ascertained the existence of nitre in plants. A late experiment of Dr. Priestley's, of which he gave an account in a letter to Dr. Wistar, seems to make it probable that there may be nitre in snow.

* Blumenbach's Physiology, Caldwell's translation, Philadelphia, 1795. § 162. Speaking of the theories of animal heat, "But all these hypotheses are embarrassed with innumerable difficulties; whereas on the other hand the utmost simplicity, and an entire correspondence with the phenomena of nature combine in recommending and confirming that doctrine in which the lungs are considered as the focus or fire place where animal heat is generated, and the deplogisticated part of the air which we breathe as the fuel that supports the vital flame. That justly celebrated character Jo. Mayow sketched out formerly the leading traces and the first great outlines of this doctrine which in our times has been greatly improved, extended and farther elucidated by the labours of the illustrious Crawford."

Dr. Darwin however is certainly right in supposing that heat is evolved in many other processes of the animal economy, beside inspiration.

† See the translation of Scheele by Dr. John Reinhold Forster 1780 p. XIII.

In p.

as almost a discovery in the chemical world, by Dr. Beddoes in the year 1790. His doctrines touch so nearly on the subsequent discoveries of Priestley, Scheele, Lavoisier, Crawford, Goodwin, &c. that it seems absolutely necessary to discuss his pretensions, before those of his successors can be accurately admitted. As I am acquainted with Dr. Beddoes's pamphlet on Mayow, from the analytical review of it only, (V. vi.) and have no opportunity here of consulting it, I shall take up Mayow's book, and give an account of his tenets, from the work itself.

Two of Mayow's Essays, viz. de Respiratione and de Rachitide, appear to have been published at Leyden, in 1671, the author who died at the age of 34, being then 26 years old. The propositions which I have thought it necessary to extract from Mayow's work, (ed. of 1674, Oxford,) and which I shall insert, will give a concise, but faithful view of his discoveries

---

In p. 437 of v. 5 of the analytical review of Hopson's Chemistry, before Dr. Beddoes's account of Mayow in 1790 the latter is stated as the author of discoveries that might have given rise to the present system of pneumatic Chemistry.

coveries and conjectures in pneumatic Chemistry.* The abridgements of Beddoes and Fourcroy, I have no opportunity to consult, and as Mayow's book is far from being common, I have deemed it by no means an unnecessary labour to give the reader an opportunity of judging for himself, what is the precise extent of the claim, which the patrons of Mayow's reputation may fairly set up. It is also, of the more importance in a history of this subject, to notice the pretensions of this writer, as it appears that Boyle's experiments on artificial air, in his physico-mechanical experiments were not made until the year 1676 et seq. Though the first edition of that treatise repeatedly quoted by Mayow was in 1661. Mayow's experiments therefore ought to have been, and probably were known to Boyle at the publication of his last edition.†

The

* I believe Dr. Beddoes gives no more than the heads of each chapter and, a brief analysis of the contents. Dr. Beddoes in his remarks on Fourcroy's account of Mayow, Ann. de Chimie. No. 85, Nich. Jour. v. 3 quarto p. 108 states Mayow at the time of his death to have been only 27 and 28: but he was born in 1645 and died in 1769. Biog. Dict. 8vo. ed. of 1798.

† I do not find that Boyle quotes Mayow, though their labours in the

The following is an analysis of Mayow's essays, so far as relates to his chemical Philosophy.

CHAP. 1*st*. *Of Nitre.* The air is impregnated with a vital, igneous, and highly fermentative spirit of a nitro-saline nature. p. 1.

Nitre is a salt consisting of an acid and an alkaline part, as appears by the Analysis, and by the generation of nitre; for if this salt be deflagrated with sulphur, the acid spirit will fly off, and may be collected by means of a tubulated retort and a receiver: and so if it be deflagrated with tartar, the residuum will be equal in weight to the tartar employed, though much of that, is of a fœtid oily nature. This appears also from the composition of nitre, by the addition of spirit of nitre to an alcali, p. 2–4. The fixed part of nitre is obtained from the earth; pure

---

the same field were contemporary. But Boyle in his hidden qualities of the air published in 1674 has an observation that looks as if derived from Mayow. "And this undestroyed springiness of the air, with the necessity of fresh air to the life of hot animals, suggests a great suspicion of some vital substance if I may so call it, diffused through the air, whether it be a volatile nitre or rather some anonymous substance, sidereal or subterraneal, though not improperly of kin to that which seems so necessary to the maintenance of other flames."

pure earth being probably a compound of salt and sulphur. p. 8.

CHAP. 2d. *On the aereal and fiery spirit of nitre.* The air seems to contain an acid, as appears from the regeneration of vitriolic acid after the calcination of Vitriol, and from the rusting of steel filings in a moist air; p. 10. A component part of the acid of nitre, is derived from the air, which evidently contains something necessary to the support of flame. But this aereal pabulum of flame, is not air itself, for air remains when the confined taper is extinguished: nor is it as vulgarly supposed, the salt called nitre, p. 12. But that these fire-air particles exist also in nitre is evident, since this salt will support the combustion of sulphur in vacuo. Fill a tube with gunpowder slightly moistened, and it will burn out in vacuo, or with its mouth inverted over water. Hence the aereal part of nitre, is the same with the fire-air particles of the atmosphere, and is one component part of the acid spirit of nitre: the other being (like the fixed part) obtained from the earth, p. 17. 18. The fiery particles thus common to nitre and to the air, he denominates nitro-aereal. It is these that give causticity to spirit of

nitre, and occasion the red fumes observed in distilling it, p. 18. They do not take fire of themselves in nitre, because they are inveloped with moisture; but when combined with salt of tartar, and thrown on the fire in a dry state they inflame, p. 20.

CHAP. 3*d*. *Of the nature of the nitro-aereal and fiery spirit.* Fire he conceives to consist of these nitro-aereal particles set in violent motion by means of sulphureous bodies, in the cases of culinary fire: but by some other means, in the cases of the solar rays collected by a burning glass, and of the celestial fires. The corrosive and caustic nature both of fire and nitrous acid, seems to argue that it proceeds in both from the nitro-aereal particles they contain, 22–24. That fire is not of a sulphureous nature is evident, for nitre will not take fire in an ignited crucible; but oil thrown in takes fire immediately. So if a piece of metal be held over a candle, the fire particles pass through the metal, but the sulphureous smoke adheres to the under side. p. 27.

That the heat occasioned by a burning glass, consists of these nitro-aereal particles is evident, for diaphoretic antimony may be made, either first by calcina-

calcination with a lens, or secondly, by the repeated affusion of nitrous acid, or thirdly, by the deflagration of nitre on the antimony. Diaphoretic antimony made by calcination, increases on weight,* by means of the nitro-aereal particles fixed in it by the process. p. 28. 29.

CHAP. 4*th*. *On the origin of acid liquors, and the earthy part of Spirits of nitre.* From p. 34, it appears that he knew nothing of the absorption and combination of his nitro-aereal particles in the vitriolic acid, during the combustion of sulphur, but explains the whole mechanically by the saline portion of the sulphur being broken down into minute pointed particles, by the violent attrition of the nitro-aereal particles, and so becoming fluid and sharpened. He seems too, not to know that the colcothar of martial vitriol is no component part of sulphur, p. 37. The same mechanical explana-

* It was first observed by John Rey in 1630 that metals calcined, gain weight by the absorption of air. See an account of his book by M. Bayen Journ. de Rozier 1775 v. 1 p. 48. There are also some experiments by Boyle that shew the accession of weight on the calcination of metals, but he does not seem aware of the theory. Shaw's Boyle, Fire and Flame weighed v. 2 p. 394, &c.

planation he applies to the formation of the ligneous acids, and to the impregnation of the caput mortuum or colcothar of vitriol, with fresh acid by exposure of air. In the succeeding paragraph, p. 39, he supposes that marchasite (martial pyrites) imbibes the nitro-aereal particles from the atmosphere, and thus acid is formed. In like manner he explains the formation of acids produced by fermentation, by the collision between the nitro-aereal, and the sulphureo-saline particles of the mass. p. 41. So also he supposes nitrous acid to be produced by the detention of his nitro-aereal particles by the terrene saline particles found in the earth, p. 43. Hence he concludes generally, p. 43, that acid salts are formed from a saline basis brought into fusion or fluidity by the nitro-aereal part of the air: and sums up his theory of nitre, by stating it to be a triple salt, composed of nitro-aereal particles, united to a terrene basis forming the acid, which then unites to the fixed basis, supplied also by the earth.

CHAP. *5th. On Fermentation.* He gives in this chapter his theory of fermentation, as arising from the conflict of his nitro-aereal principle which he thinks may be termed mercury, and the sulphure-

ous

ous principle: evidently meaning by the latter, the Phlogiston of Stahl: and he states broadly, p. 60. that pure sulphur can never admit of accension, but by means of the nitro-aereal particles obtained from the atmosphere. The rest of his reasoning in this chapter, does not seem deserving of further notice.

CHAP. 6*th*. *On the nitro-aereal spirit as the cause of rigidity and elasticity.* These he explains by the fixation and state of his nitro-aereal particles in bodies endowed with these properties. In p. 69 he endeavours to account why boiled water freezes sooner than that which has not been boiled; a fact which Dr. Black has made the subject of a paper in the 45th vol. of the Philosophical transactions. But his reasonings throughout this chapter are not calculated to add to his reputation, or to the mass of knowledge of the present day.

CHAP. 7*th*. *The elastic force of the Air depends on its nitro-aereal particles. In what way exhausted air is reimpregnated with them. Of the elements of Heat and Cold.* This chapter contains experiments to shew that the elasticity of

of the air is owing to the nitro-aereal particles contained in it: which may be destroyed by the burning of a candle or other combustible substances, and also by the breathing of animals. When the atmospheric air contained in a glass jar inverted over water, will no longer support flame or animal life, the water rises in the jar, owing to the diminished elasticity of the air, not being able to counteract the pressure of the surrounding atmosphere on the water p. 100. He finds p. 101 that the diminution by burning a taper in a given quantity of the air, is about one thirtieth of the whole, and by the breathing of mice and other animals about one fourteenth. Thence he concludes p. 106 that by means of respiration the elastic part of the air enters into the blood, and that the sole use of the lungs is not as some suppose, to break down the blood in its passage into very minute particles. That combustion and respiration have similar effects on atmospherical air, he concludes, p. 108, from the fact, that a candle and a small animal inclosed together in a glass jar over water, the one will not burn, nor the other remain alive above half the time that they would if alone. Mayow however, did not consider

sider his nitro-igneous and elastic particles to be either pure air, or even a component part of the common air, as air, notwithstanding the ambiguity of the passages in p. 114 and 118; but as particles of a different nature, attached to and fixed in the atmospheric particles; and detached *(excussas)* by the means above mentioned, p. 118 and 121. His explanation of elasticity generally in this chap. and of the difficulty arising from the obvious resistance to the Atmosphere, and the expansibility of the air in which a taper has been extinguished, or an animal died, seem too obscure and unintelligible to merit transcribing. It is evident however upon the whole from p. 123 compared with p. 100 and 135 that he conceived the diminution of such air to arise from diminished elasticity, but he supposes it to be denser than common air 123. In a subsequent part of this chapter p. 128 et seq. he states his theory of the manner in which deteriorated air recovers its loss, viz. that the nitro-aereal particles being lighter than the atmospherical, float abundantly in the higher regions; and that the part of the atmosphere deprived of them below, being forced upward by the pressure of the atmosphere above, obtains a renewal

of

of these particles by mixture with the strata where they abound.

The element of fire, he supposes to reside in the body of the Sun, which is no other than a mass of nitro-aereal particles driven in perpetual gyration with immense velocity. Cold, which he considers as some thing positive (p. 130) he thinks consists in these particles assuming a pointed form, and moving not in gyration but strait forward. Much of his reasoning indeed throughout the book, savours greatly of the mechanical and corpuscular philosophy prevalent in his day.

CHAP. 8*th*. *On the nitro-aereal spirit as inspired by animals*. Formerly he thought that in respiration the nitro-aereal particles were rubbed or shaken off (*atterere*, *excutere* 146) from the common air by the action of the lungs, at present he thinks the air itself enters the mass of the blood, is there deprived of these particles, and of part of its elasticity. To prove this he produces an experiment of the diminution of air by the vapours from iron dissolved in nitrous acid: but the beautiful deductions of Dr. Priestley from a similar experiment, never occurred to him; on the contrary he expressly states that it

is

is an Aura, but not Air p. 145 and though afterward in chap. 9 p. 163, 164 he inclines to doubt, yet again in p. 168 he denies it that character.

In p. 146 he proceeds to state the uses of these nitro-aereal particles, which (147) he considers as the principle of life and motion both in animals and vegetables. By the mutual action of the nitro-aereal, with the sulphureo-saline particles contained in the blood, a fermentation is excited necessary to animal life, and to the warm fluid circulation of the blood (*ad sanguinis æstum.*) To these particles imbibed from the air, he attributes the difference in colour between the venous and arterial blood; and he shews this, from the numerous air bubbles arising in an exhausted receiver from warm arterial blood: but his experiment to illustrate the difference, from the colour produced by the nitrous acid with vol. alk. seems very little to the purpose p. 150.

To the fermentation arising from this mixture of nitro-aereal particles with the blood, he ascribes animal heat, and accounts satisfactorily for the increased heat of the body during strong exercise, from the more frequent inspirations occasioned by the exertion (p. 152, 306:) but his replies to the objections

of

of Dr. Willis, drawn from the phenomena of fermenting mixtures, are very inconclusive.

CHAP. 9*th*. *Whether air can be generated anew.* He repeats the experiment of dissolving iron in dilute nitrous acid, and finds that though some of the vapour be absorbed, a portion still remains uncondensible even by severe cold. On substituting dilute vitr. for nitr. acid he finds an aura which is hardly absorbed or condensed at all. Hence he doubts whether these auræ be not entitled to the appellation of air, especially as by subsequent experiment he shews that they are equally expansible with common air. In making this last experiment he exhibits the method of transferring air from one vessel to another (Tab. 5. Fig. 5.) much in the manner afterwards described by Mr. Cavendish in 1766.* From the inability of these auræ to support animal life (Tab. 5. Fig. 6.) he concludes finally that they are not air, though not very dissimilar p. 171. The succeeding five chapters do not seem to contain any facts or conjectures that can add to Mayow's reputation. His

* Boyle had invented an apparatus for transferring air from one receiver of an air-pump to another, but not under water.

His Hypotheses are completely superceded by the more accurate knowledge of the present day. In his tract on quick lime p. 225 he seems to have forestalled the acidum pingue of Dr. Meyer published exactly a century afterward. It may be noted that in his treatise on the Bath waters p. 259, he describes fishes as collecting vital air from the water, and respiring like land animals. (Aereum aliquod vitale ab aquà, veluti aliàs ab aurà secretum et in cruoris massam trajiciatur.) The air bladder he considers rather as a reservoir of air to be inspired, than a receptacle for excreted air; though the latter opinion is made probable by Dr. Priestley.*

The first part of his *Treatises on Respiration* is is chiefly anatomical. In p. 300 et seq. he states more fully his opinion, that vital air, is of a nitro-saline nature: that it is the principle of life, both in Animals and Vegetables: that combined with the sulphureo-saline particles in the blood, it is the stimulus to the muscular fibre, and of course to the heart

* See Nich. Journ. v. 3 p. 119 on the probability of fishes separating oxygen from the water they inhabit.

heart as a muscle, p. 305; but that the fermentation occasioned by the introduction of these particles into the blood, is not confined to the left ventricle of the heart, but commences, in the passage of the blood through the lungs, and continues in the Arteries. This evidently approaches the theory, advanced by Dr. Goodwyn in his tract on the Connection of life with respiration about sixteen years ago, viz. that the pure air combined with the blood is the stimulus to the left ventricle of the heart, and produces the alternate contraction, and dilation on which the circulation depends. Dr. Lower, in his treatise de motu sanguinis, and Fracassati, and Dr. Frederick Slare attributed the change of the colour of venous blood into a florid red, to the combination of the air with it. Lower I believe preceded Mayow, who quotes him, p. 148; the date of Fracassati's and Dr. Slare's observations I have not been able to ascertain, but they must have been near the time of Mayow. Lowth. Ab. v. iii. p. 237.

In his third treatise on respiration, he explains the Animal œconomy of the fœtus in utero, by suggesting that the fœtus is supplied by the placenta, not with

with venous, but with arterial blood brought by the umbilical Arteries; so that the required stimulus of the nitro-aereal particles being thus conveyed, supercedes the necessity of the lungs for the purpose. This he ingeniously illustrates by the known experiment, that a dog into whom arterial blood is infused, though respiring with great difficulty before, hardly respires at all. A similar theory he applies to the life of the chick in ovo. This treatise seems to have suggested Dr. Beddoes's illustration of his theory of consumption from the state of pregnancy.

In a subsequent Essay on animal spirits, he conceives them to be, if not the same with the nitro-aereal part of the atmosphere, yet to consist of this, so far as they are necessary to the production of muscular motion, which he attributes entirely as before to nitro-aereal particles, p. 24 and 40, of chap. 4, on the animal spirits.

I do not observe any thing else in Mayow's book worth noting on the present occasion; or sufficiently connected with pneumatic Chemistry.

From the analysis thus given of* what Mayow has

* At the time this was written neither Dr. Bostock's treatise on respira-

has advanced, it appears, that he clearly comprehended the atmosphere to consist of a mixture of two parts, the one the efficient cause of life and of combustion, the other not of itself necessary to either.

That the vital part of the air, was also a constituent part of nitre, the effects of both being in essential particulars the same.*

That the vital part of the atmosphere entering the blood through the vessels in the lungs, is conveyed to the left ventricle of the heart, and becomes the stimulus to the contractions of that muscle, and is equally essential to the whole system of muscular contraction.

That

---

respiration or the books therein quoted p. 200 had arrived here. Nor have I had an opportunity of consulting the references there made to Prof. Robinson, Dr. Thompson, Dr. Yeates, or Fourcroy's account of Mayow.

* Mr. Ray wrote "A dissertatson (in 1696) about respiration," in which he supposes the air to pass from the bronchia and lungs into the substance of the blood, and there (pabuli instar) it foments and maintains the vital flame which he supposes to be in the sulphureous parts of the blood, as the air foments the common flame of a candle, and that the nitre has nothing to do with it. See Durham's collection of Ray's letters.

That the vital part of the atmosphere thus combined with the blood becomes also the source of animal heat.

That this vital part is equally necessary to the fœtus in utero as to the adult, and that the use of the lungs in the former case is superceded by the functions of the umbilical artery and placenta; by means of which, blood already impregnated with the vital air, is conveyed to the fœtus.

That the respiration of fishes, is dependant on the particles of air mixed with watery element they inhabited.

That heat, flame, and combustion, depend on two universal principles, and the gentleness or violence of their mutual conflict: the one being a principle of inflammability universally diffused in combustible bodies, and the other the vital or igneous part of the atmosphere.

These propositions evidently touch upon the most brilliant of the pneumatic discoveries of the authors already quoted; and not a little extraordinary it is, that they should have remained so long unknown, unnoticed, and not understood.

The sulphur of Mayow is decidedly the Phlogis-

ton of Stahl; the fire air of the former is the fire air of Scheele, the dephlogisticated air of Priestley, and the Oxygen of Lavoisier.

The combination of oxygen with the blood by means of respiration, first discovered as was thought by Lavoisier, is clearly stated by Mayow; who has also forestalled the elaborate theories of Crawford on animal heat, of Goodwyn, on muscular stimulus, and of Beddoes on the succedaneum for respiration in the fœtus.

Boyle, though he must certainly have known of Mayow, neither quotes him, nor uses, or improves on his experiments; though as I have already remarked, he seems to have had notions of the atmosphere much like those adopted by Mayow. Whether this neglect arose from the pride of birth, or the pride of knowledge, or the pride of age, (for Boyle was almost twice the age of Mayow) or from jealousy of Mayow's abilities, cannot now be ascertained. From that time until Hales published his statics in 1726, pneumatic experiments were neglected, and the mathematical philosophy which Newton's discoveries rendered fashionable, absorbed for many years the attention of men of Science, particularly in England.

The

The way in which Lemery, Hales and Brownrigg speak of Mayow, evidently shews that his theories were not understood, nor his merits appreciated.

That Mayow was unknown to Black and Cavendish until of late years, is highly probable at least, if not absolutely certain. Neither these philosophers, nor Dr. Priestley, could have passed over Mayow's book, without being struck with his ideas, and publicly referring to them in their chemical works.

That Dr. Priestley was unacquainted with Mayow is certain, from the limited extent of his reading at the early period of his experiments (from 1770 to 1776 or 1777,) in books of chemistry and theoretic physiology: from Mayow, not being quoted by any of the writers whose works Dr. Priestley would be likely to consult except Hales and Brownrigg, and not by them in a manner to induce any farther curiosity: from their being unnoticed by Black, Cavendish, Sir. John Pringle, and Lavoisier, in particular: from the custom that Dr. Priestley had of acknowledging the sources of his ideas in all cases where they originated from the discoveries of others, as in his references to Hales, Brownrigg, Cavendish,

&c; and from his making no mention of Mayow in his express account of the labours of his predecessors on the subject of animal respiration. That both he and Sir John Pringle before the Royal Society in 1772 and 1776 should expressly treat the *history* of discoveries in which Mayow bore so distinguished a part, and omit noticing him altogether, had they known of his works, is incredible. It is evident that he was then an obscure writer, and not in repute, or he would have occurred to them; or some of their philosophical friends would have suggested the propriety of referring to his publications.

Neither is it likely that Scheele would have been acquainted with Mayow's writings, though it is singular that he escaped the notice of Lavoisier who I believe was employed under government in the collection of essays on the theory and manufacture of saltpetre and in the superintendance of the saltpetre works, especially as Mayow was mentioned though disrespectfully by Lemery, in his paper on nitre before referred to. But there certainly is no evidence that Lavoisier obtained his ideas of oxygen and its combination with the blood from Mayow, or his theory of metallic calcination from Jean Rey, though his

his obligations to Dr. Priestley have not been always acknowledged with the candour and liberality that men of science would expect from Lavoisier.

Mayow had more than ordinary discernment in comparing known facts, and drawing conclusions from them, but he does not appear to have had the talent of imagining decisive experiments, of varying them, of observing and noting all the natural phenomena attendant upon them, or sufficient industry in pursuing them. It is one thing to make a plausible conjecture, and another to verify it. Those alone are entitled to the honour of discoveries who not merely start the theory, but take the pains of pursuing it by experiments and resting it on the basis of well conceived and accurately ascertained facts, sufficiently numerous and varied to obviate the most prominent objections. Mayow has reasoned with great acuteness and conjectured with singular felicity, but he added little to the mass of philosophical KNOWLEDGE in his day. He composed and decomposed nitre and ascertained the existence of vital air in this substance as well as in the atmosphere, but he did not collect, exhibit, and examine it. He knew how to make artificial air from nitrous acid and iron, but all the

the extraordinary properties of this gas, remained unobserved by him as well as by others until collected and imprisoned by Dr. Priestley, and exposed to the question under his scrutinizing eye. Indeed as an experimentalist Dr. Priestley stands unrivalled. The multiplicity of his experiments, their ingenuity, their bearings upon the point in question, their general importance, and their fidelity, were never equalled upon the whole, before or since. Nor is it any detraction from their merit with those who are accustomed to experiment, that they hold out no pretensions to that suspicious accuracy, which has too often depended more upon arithmetical calculations than upon actual weight and measure. The many kinds of aeriform fluids discovered by Dr. Priestley, the many methods of procuring them, the skilfull investigation of their properties, the foundation he laid for the labours of others, the simplicity, the novelty, the neatness, and the cheapness of his apparatus, and his unequalled industry, have deservedly placed him at the head of pneumatic Chemistry. Nor should it be forgotten that while he thus outstripped his predecessors and contemporaries in the field of experiment, it formed not as with them

them the business of his life, but (among other branches of literature and philosophy successfully cultivated) the occupation of his leisure hours, the relaxation from what he deemed more important, more laborious, and more obligatory pursuits.

Before his time (excluding Mayow) Boyle had discovered that air might be generated, fatal to animal life. It was known that common air would only serve a certain time for the purposes of combustion and respiration. The mephitic exhalations from natural Grottoes had been remarked. Inflammable air both natural and artificial had been exhibited before the royal society. Hales had ascertained the presence of air in a great number of substances where it was not commonly suspected though he had not the skill to examine the properties of the air produced. Black had ascertained the presence of fixed air in limestone, and Brownrigg, Lane, and Venel had illustrated the theory of mineral waters. But it was the paper of Cavendish in 1766 on fixed and inflammable air produced from various substances by means of acids, fermentation and putrefaction, that first introduced a stile of experimenting in pneumatic chemistry, more neat, more precise, and scientific than had hitherto been known.

The

The attention of Dr. Priestley however to these subjects was not originally excited by the works of his predecessors, but by the *accident* of his proximity to a brew-house at Leeds, where of course fixed air (a subject that had attracted much attention about that time) would be produced in a large way. It was thus that one experiment led to another, until the fruits of his amusements were the discoveries on which his philosophical reputation is principally founded. It is no more than justice to his character to mention in this place, that of all men living he was the freest from literary deception and the vanity of authorship. He never claims the merit of profound investigation or great foresight, for discoveries that might easily have been so stated as if they had been the pure result of those qualifications, but which were in reality the offspring of accident and circumstance. He excites others to patient labour in the field of experiment, from observing that success does not depend so much on great abilities or extensive knowledge, as on patient attention, and perseverance; and that much of his own reputation was owing to the discovery of facts that arose in the course of his pursuits, the result of no previous theory, unlooked for

for and unexpected. In v. 3 p. 282 of his experiments on air he says "Few persons I believe have "met with so much unexpected good success as "myself in the course of my philosophical pursuits. "My narrative will shew that the first hints at least "of almost every thing that I have discovered of "much importance have occurred to me in this "manner. In looking for one thing I have general- "found another, and sometimes a thing of much "more value than that which I was in quest of. "But none of these unexpected discoveries appear "to me to have been so extraordinary as that I am "about to relate (viz. the spontaneous emission of "dephlogisticated air from water containing a green "vegetating matter) and it may serve to admonish "all persons who are engaged in similar pursuits, "not to overlook any circumstance relating to an "experiment, but to keep their eyes open to every "new appearance and to give due attention to it "however inconsiderable it may seem."* To this candour of disposition, and the readiness with which

* See also the 1st, vol. of his early edition of experiments on air p, 29.

which he acknowledged his mistakes and his oversights, even those who opposed his opinions bear honourable testimony. "The celebrated Priestley himself "(says M. Berthollet in his reply to Kirwan on "Phlogiston p. 124 of the Eng. translation) often "sets us the example, by rectifying the results of "some of his numerous experiments."

Numerous indeed those experiments were as well as important: far too numerous to be particularised here; though it may not be improper to call to the recollection of the reader some of the more interesting facts which we owe to Dr. Priestley, and the times of their discovery and communication.

The first of his *publications* on pneumatic chemistry was in 1772, announcing the method of impregnating water with fixed air, and on the preparation and medicinal uses of artificial mineral waters; a discovery that domesticated much of the knowledge that had heretofore been disclosed only in the works of learned societies; and that beautifully exemplified how much of the health and the pleasure of common life, might depend on the ingenious researches of men of science. Though this was the

first

first publication of Dr. Priestley on the chemistry of the airs, he had certainly commenced his experiments in this branch of Science, soon after his arrival at Leeds, and as early at least, as 1768. In the year 1771 he had already procured good air from saltpetre; he had ascertained the use of agitation, and of vegitation as the means employed by nature in purifying the atmosphere destined to the support of animal life, and that air vitiated by animal respiration was a pabulum to vegetable life; he had procured factitious air in a much greater variety of ways than had been known before, and he had been in the habit of substituting quicksilver in lieu of water, for the purpose of many of his experiments. In his paper before the Royal Society, in the spring of 1772, which deservedly obtained him the honour of the Copley Medal, he gives an account of these discoveries. In the same paper he announces the discovery of that singular fluid nitrous air,* and its beautiful

* Honestly referring to Dr. Hales and Mr. Cavendish for any idea that might have remotely led to this discovery (See Obs. on air 1st ed. v. 1 p. 108) the discovery however was completely his own.

Dr. Priestley seems always to have thought nitrous air as conveni-

ent

tiful application as a test of the purity or fitness for respiration of airs generally. In the same paper he shews the use of a burning lens in pneumatic experiments; he relates the discovery and properties of marine acid air; he adds much to the little of what had been heretofore known of the airs generated by putrefactive processes, and by vegetable fermentations, and he determines many facts relating to the diminution and deterioration of air, by the combustion of Charcoal, and the calcination of of metals.

Soon after this, in confirmation of Sir John Pringle's theory of intermittents and low fevers being generally owing to moist miasma when people are exposed to its influence, he ascertained by means of his

---

ent a substance for eudiometrical experiments as any of the later substitutes, viz. the liquid sulphurets and the combustion of phosphorus. The foundation of Mr. Davy's substitute, muriat or sulphat of iron saturated with nitrous air, was as Mr. Davy acknowledges first discovered by Dr. Priesley himself. See Nich. Journ. for Jan. 1802 p. 41. The different states of the solutions of iron in vitriolic acid have been ingeniously applied to the analysis of mixed gasses by Humboldt and Vauquelin.

his nitrous test that the air of marshes was inferior in purity to the common air of the atmosphere.*

He had obtained very good air from saltpetre in 1771, but his full discovery of dephlogisticated air, seems not to have been made until June or July, 1774,† when he procured it from precipitate per se, and from red lead. This was publicly mentioned by him at the table of Mr. and Madame Lavoisier, at Paris, in October 1774, to whom the phenomena were until then unknown. The experiments on the production of dephlogisticated air, he made before the scientific chemists at Paris about the same time, at Mr. Trudaine's. This hitherto secret source of animal life and animal heat, of which Mayow had but a faint and conjectural glimpse, was certainly first exhibited by Dr. Priestley, and about the same time, (unknown to each other) by Mr. Scheele of Sweden. For the honour of science, it were much to be wished that the pretensions of Mr. Lavoisier were equally well founded. He has done sufficient and

* Phil. trans. v. 54 p. 92.

† See Doctrine of Phlog. established p. 119.

and been praised sufficiently for what he has done, to satisfy a mind the most avaricious of fame; he is deservedly placed in the first rank among the philosophers of his day, and he ought not to have thrown a shade over his well earned reputation, by claiming for himself the honour of those discoveries which he had learned from another.

From this brief account of the first stage of Dr. Priestley's chemical labours, it appears that during the short period of two years, he announced to the world more facts of real importance, and extensive application, and more enlarged and extensive views of the œconomy of nature, than all his predecessors in pneumatic Chemistry had made known before.

In 1776 his observations on respiration were read before the Royal Society; in which he clearly discovered that the common air inspired, was diminished in quantity, and deteriorated in quality, by the action of the blood on it *through the blood vessels of the lungs;* and that the florid red colour of arterial blood, was communicated by the contact of air through the containing vessels. His experiments on the change of colour in blood confined in a bladder, took away all doubt of the probability of this mode

mode of action. I cannot help thinking that the circumstance of Dr. Priestley's mind being so much occupied with the prevailing theory of Phlogiston, was the reason why he did not observe that the diminution of the air, and the florid colour of the arterial blood was owing to the absorption of the pure part of the atmosphere, *rather* than to any thing emitted from the blood itself. This part of the theory of respiration Mr. Lavoisier has certainly established; though it is by no means ascertained as yet whether the vital part of the atmosphere inspired, is wholly and alone absorbed, or whether in reality something is not contributed in the lungs to the formation of the fixed air found after expiration.*

In 1778 Dr. Priestley pursued his experiments on the property of vegetables growing in the light to correct impure air, and the use of vegetation in this part

* That azote is absorbed during respiration as Dr. Priestley supposed contrary to Mr. Lavoisier's opinion, is made extremely probable by the experiments of Mr. Davy, whose accuracy is well known. Researches, p. 434. The formation of water in this process, is certainly no more than conjecture as yet. Dr. Bostock has lately published a very useful and laborious history of discoveries relating to respiration, both anatomical and pneumatical.

part of the œconomy of nature. A discovery which was announced to several men of science in England previous to the publication of the same ideas by Dr. Ingenhouz.* Indeed from its having been communicated to M. Magellan whose pleasure and whose occupation it was, to give information of new facts to his philosophical correspondents, and of this in particular to Dr. Ingenhouz then engaged in similar researches, there is hardly a doubt but the latter knew of the experiments then pending on the subject by Dr. Priestley.

It is painful to notice these aberrations from propriety in the conduct of men highly respectable in the philosophical world, arising from an over anxious avarice of literary fame, and an improper jealousy of the reputation of another. Not that it derogates from the character of a philosopher to wish for the applause

* Doctrine of Phlogiston established, p. 107, et. seq. The theory of the amelioration of impure air by the absorption and excretion of vegetables growing in the light, has been doubted by Dr. Darwin in his Phytologia, and opposed by Count Rumford in a paper published in the transactions of the Royal Society, for 1787: also by Dr. Woodhouse of Philadelphia, Nicholson's Journal, for July 1802, and by Mr. Robert Harrup, Nicholson's Journal, for July 1803.

applause of those who know how to appreciate his merit, or who are benefited by his exertions; such an anxiety is laudable when it does not lead to encroachments on the literary rights of others; nor is it at all desireable under the present circumstances of human nature, to expect from men of science an attention to their pursuits arising from motives of pure benevolence alone, and excluding all views, hopes, and expectations of the gratifying tribute of public approbation. I believe no man ever laboured with a more single eye to public utility than Dr. Priestley. But consideration in society, and the respectability attendant upon great talents, and great industry, successfully employed for the benefit of mankind, is a motive to useful exertion so universal, so honest, so laudable, and withal so powerful, that it is the common interest, as well as the duty of society, to bestow it liberally where it has been earned faithfully, and to concede it to those only, who have really deserved this honourable reward.

From this period Dr. Priestley seems to have attended to his pneumatic experiments as an occupation; devoting to them a regular portion of his time. To this attention, among a prodigious variety of

facts tending to shew the various substances from which the gasses may be procured; the methods of producing them; their influence on each other, and their probable composition, we owe the discovery of vitriolic acid air, of fluor acid air, of vegetable acid air, of alkaline air, and of dephlogisticated nitrous air, or gazeous oxide of azote as it has been called, the subject of so many curious experiments by Mr. Davy. To these we may add the production of the various kinds of inflammable air by numerous processes that had escaped the observation of Mr. Cavendish; in particular the formation of it by the electric spark taken in oils, in spirits of wine and in alkaline air; the method of procuring it by passing steam through hot iron filings, and the phenomena of that hitherto undetermined substance the finery cinder, and its alliance to steel. To Dr. Priestley we owe the very fine experiment of reviving metallic calces in inflammable air and its absorption in toto, apparently at least, undecomposed. He first ascertained the necessity of water to the formation of the gasses, and the endless production of air from water itself.

Dr. Priestley's experiments on this subject, to wit:

wit: the generation of air from water, opened a new field for reflection, and deserves more minute notice. No theory has yet been proposed adequate to the explanation of the facts. He had before remarked that water was necessary to the generation of every species of air, but the unceasing product of air from water had never been before observed.

In his first set of experiments he procured air, by converting the whole of a quantity of water into steam: then, to obviate the objection to the water having imbibed air from the atmosphere he put the water on mercury in long glass tubes immersed in mercury: in a third process he used no heat, but merely took off the pressure of the atmosphere. In all these cases a bubble of air was extricated from the water, which being separated by inclining the tube, another bubble was again produced on each repetition of the experiment. That this could not be air imbibed from the atmosphere appeared from this, that though the first portions were generally purer than atmospheric air, the next became less pure, and at length wholly phlogisticated.

It did not appear that the addition of acids, enabled the water to yield more air, nor did he succeed

ceed in attempting to convert the whole of a given quantity of water into air, although exposing the water confined over mercury to heat, and separating the air produced, it still continued to produce more air for twenty or thirty repetitions of the experiments. When a certain proportion of air was thus produced at any one time, no continuance of the experiment would encrease the quantity until it was separated. Hence he concludes that the longest continuance of of water in the state of vapour would not convert it into air. The water used was pure distilled water previously boiled to separate any adventitious air that might have been imbibed from the atmosphere. The precautions he used, and the replies to such objections as he foresaw the experiment would be liable to, are detailed in the papers he published on the subject, to wit, a separate pamphlet published in England in 1793, and a communication in the Am. Ph. trans. v. IV. p. 11—20.

In the last mentioned paper, he proceeds also to give an account of some experiments on the property of water to imbibe different kinds of air, and the conversion of sp. of wine, into inflammable air.

This paper inserted in the American transactions,

was

was read before that society in Feb. 1796. In Ap. 1800 another paper was read before the same society on the production of air by the freezing of water Am. Ph. trans. v. V. p. 36. In this paper he recapitulates the general result of his former experiments on the generation of air from water, namely "that after all "air had been extracted from any quantity of water "by heat or by taking off the pressure of the atmos- "phere, whenever any portion of it was converted "into vapour, a bubble of permanent air was formed, "and this was always phlogisticated. The process "with the Torricellian vacuum (he says) I continued "for some years and found the production of air "equable to the last. The necessary inference from "this experiment is, that water is convertible into "phlogisticated air, or that it contains more of this "air intimately combined with it than can be ex- "tricated from these processes in any reasonable "time."

He proceeds to state his imperfect attempts to procure air from water by freezing, until he procured cylindrical iron vessels seven or eight inches high and near three inches wide at the bottom, the upper orifice closed with a cork and cement, in the centre of which

which was a glass tube about one fifteenth of an inch in diameter. In this apparatus the water in the iron vessel was frozen by means of snow and salt, the vessel being immersed in mercury, and the water contained over the mercury. The quantity of water was about three ounces. The experiment was repeated nine times without changing the water, and the last portion of air procured in this manner was as great as any of the preceding; so that there remained no reasonable doubt but that air might be produced from the same water in this manner ad libitum. Having obtained near two inches of air in the glass tube, Dr. Priestley put an end to the experiment, and examining the air found it wholly phlogisticated, not being affected by nitrous air, and having nothing inflammable in it.

The inference drawn by the Doctor from those experiments is, that water when reduced by *any means* into the state of vapour, is in part converted into phlogisticated air; and this is one of the methods provided by nature for keeping up the equilibrium of the atmosphere, as the influence of light on growing vegetables is the means of recruiting the other part; both of them being subject to absorption and

diminu-

diminution in several natural processes. And he thinks that they strengthen also the opinion, that water is the basis of every kind of air, instead of being itself a compound of hydrogen and oxygen according to the new theory. At all events the experiments themselves must be considered as extremely curious, as well as new.

The water and the salt thus made use of gave rise to another experiment of the most important nature to the present theory of chemistry, if it should on future repetition be ultimately verified. This experiment related by Dr. Priestley in a letter to Dr. Wiston is in substance as follows. Having repeatedly used as above mentioned a freezing mixture of common salt and snow, the experiment being finished, he evaporated the snow water in an iron vessel and recovered the salt. The salt thus recovered contained some calx of iron. He put it by in a bottle and labelled it, according to his usual practice. In October 1803, he wanted to procure some marine acid, and took the salt thus procured by evaporating the snow water, for the purpose. On commencing the distillation, he was surprized to find the receiver full of the characteristic red fumes of the nitrous acid.

acid. The vitriolic acid used for the purpose was diluted with about an equal quantity of water. On finishing the process, he took some of the acid in the receiver, and dissolved copper in it, and thus procured good nitrous air. He was himself perfectly persuaded that no nitre had been used in the freezing mixture, nor had any by accident or design been mixed with the salt. He was not unacquainted with the common mode of clearing black oil of vitriol by the addition of nitre. So that no means of accounting for this curious fact remained, but the snow or the iron: he seemed to think that should this experiment be fully verified hereafter, it would confirm the vulgar hypothesis of snow containing nitre, and account for the fertilizing quality usually attributed to snow. He had no opportunity in that winter of repeating the experiment as he died in about three months after, and his previous illness had compelled him to forsake his laboratory.

Of the almost discarded theory of Phlogiston Dr. Priestley to his death remained the strenuous advocate, and almost the sole supporter; *ipse Agmen.* Beautiful and elegant as the simplicity of the new doctrine appears, many facts yet remain to be explained,

plained, to which the old system will apply, and the French theory is inadequate. These are collected with an ingenuity of arrangement, and a force of reasoning in the last pamphlet published by the Doctor on the subject,* which no man as yet unprejudiced can peruse, without hesitating on the truth of the fashionable theory of the day.

Certainly, it has not yet been sufficiently explained on the new theory, what becomes of the Oxygen from the decomposed water in the solution of metals in acids; nor why inflammable air is produced when one metal in solution is precipitated by another; nor why dephlogisticated air is hardly to be procured from finery cinder, if at all; nor why this substance so abounding in oxygen according to the new theory, will not oxygenate the muriatic acid; nor why it should answer all the purposes of water in the production of inflammable air from charcoal; nor why water in abundance should be produced when finery cinder is heated in inflammable air, and none when red precipitate is exposed to the same process; nor what becomes of the oxygen of the decomposed water

* The doctrine of phlogiston established 1803.

ter when steam is sent over red hot Zinc, and inflammable air is produced without any addition in weight to the Zinc employed; nor why there should be a copious production of inflammable air when hot filings of Zinc are added to hot mercury in a hot retort and exposed to a common furnace heat, which I believe is an unreported experiment of Mr. Kirwan's; nor why sulphur and phosphorus are formed by heating their acids in inflammable air without our being able to detect the oxygen which on the new theory ought to be separated, nor why water should be produced by the combustion of inflammable air with ,47 of oxygen, and nitrous acid when ,51 of oxygen is employed, for this experiment can now no more be doubted than explained; nor why on the new doctrine the addition of phlogisticated air, should make no alteration in the quantity of acid thus obtained; nor why red hot charcoal slowly supplied with steam, should furnish inflammable air only and not fixed or carbonic acid air; nor why nothing but pure fixed air should be produced by heating the carbonated Barytes in the same way; nor why fixed air should be formed under circumstances when it cannot be pretended that Carbon is present, as when

gold,

gold, silver, platina, copper, lead, tin and bismuth are heated by a lens in common air over lime water; or why the grey and yellow calces of lead should furnish carbonic acid and azote, and no oxygen; nor why the residuum of red lead when all its oxygen is driven off by heat should be either massicot or glass of lead according to the degree of heat, and not lead in its metalline state; nor why plumbago with steam should yield inflammable and not fixed air; nor why minium and precipitate per se heated in inflammable air should produce fixed air; nor why on the evaporation of a diamond in oxygen, the fixed air produced should far exceed the weight of the diamond employed, if some of the oxygen had not entered into the composition of the carbonic acid so formed; nor why there should be a constant residuum of phlogisticated air (or azote) after the firing of dephlogisticated and inflammable airs, if it be not formed in the process; nor why phlogisticated air if a simple substance, should be so evidently formed in the various processes enumerated by Dr. Priestley in the 13th section of the pamphlet of which I have made the foregoing abstract? whether the doctrine of phlogiston is still to be used as the key to the gate of chemical

mical theory, or whether it be properly thrown aside for the elegant substitute of the French chemists, can hardly be ascertained, until the preceding difficulties are cleared up on the new doctrine, for on the old theory they are sufficiently explicable. The summary of arguments in favour of Phlogiston, published by Dr. Priestley, in 1803, are evidently too important, and too difficult of reply, to be slighted by those who adopt the opposite opinions. *Non nostri est tantas componere lites.* Should the old theory ultimately fall, it may be fairly said of its respectable supporter, *si Pergama dextra defendi potuit, etiam hac defensa fuisset.*

This was almost the last of Dr. Priestley's chemical publications,* through all which, his characteristic talent as an author has been eminently preserved, that of not only adding greatly to the existing stock of knowledge, but exciting others to exertion and reflection in the same line of pursuit. Nor can I help

* To the end of this Appendix will be subjoined a list of the scattered papers on Philosophical subjects which Dr. Priestley published in periodical collections, besides those which are inserted in the Philosophical transactions.

I help thinking that much of the labours of the French philosophers in this department of science would never have been undertaken, if they had not been called forth by the previous discoveries, not of Lemery, Margraaf, Bayen, Macquer, and Beaumè, but of Hales, Black, and Macbride; of Cavendish and Priestley and Scheele.* Would to God there were no other object of contest between the rival nations of Great Britain and France, but which should add most to the sum of human knowledge, and contribute most to the means of human happiness.

It is impossible to conclude the preceding account better than by the following extract of a letter to Mr. Lindsey from a man† well able to appreciate the labours of Dr. Priestley; and the late testimony in favour of his discernment by Dr. Bostock. "To "enumerate Dr. Priestley's discoveries, would in "fact

* I do not mean to deny the tribute of praise to Marriotte and Venel, any more than to Brownrigg and Lane, and it is certain that Lavoisier was engaged in pneumatic experiments, previous to 1774.

† Richard Kirwan, Esqr.

" fact be to enter into a detail of most of those that " have been made within the last 15 years. How " many invisible fluids whose existence evaded the " sagacity of foregoing ages has he made known to " us? The very air we breathe, he has taught us to " analyze, to examine, to improve: a substance so " little known, that even the precise effect of respira- " tion was an enigma until he explained it. He first " made known to us the proper food of vegetables, " and in what the difference between these and ani- " mal substances consisted. To him Pharmacy is " indebted for the method of making artificial mi- " neral waters, as well as for a shorter method of " preparing other medicines; metallurgy for more " powerful and cheap solvents; and chemistry for " such a variety of discoveries as it would be tedious " to recite: discoveries which have new modelled " that science, and drawn to it and to this country, " the attention of all Europe. It is certain that " since the year 1773, the eye and regards of all the " learned bodies in Europe have been directed to " this country by his means. In every philosophi- " cal treatise, his name is to be found, and in almost " every page. They all own that most of their dis-

" coveries

"coveries are due either to the repetition of his dis-
"coveries, or to the hints scattered through his
"works.*

"This is not the only instance" (says Dr. Bostock,† speaking of Mr. Jurin's opinion that azote was generated, instead of being absorbed, in the process of respiration as Dr. Priestley, and after him Mr. Davy had supposed,) "in which, after the con-
"clusions of Dr. Priestley have been controverted
"by his contemporaries, a more accurate investiga-
"tion of the question, has ultimately decided in his
"favour. The complicated apparatus, and impo-
"sing air of minuteness which characterize the ope-
"rations of the French chemists, irresistibly engage
"the assent of the reader, and scarcely permit him
"to examine the stability of the foundation upon
"which the structure is erected. The simplicity
"of the processes employed by Dr. Priestley, the
"apparent ease with which his experiments were
"performed, and the unaffected conversational stile
"in

* Vindiciæ Priestlianæ, p. 68.

† Essay on respiration, p. 208.

" in which they are related have, on the contrary been " mistaken for the effects of haste and inaccuracy. " Something must also be ascribed to the theoreti- " cal language which pervades, and obscures the " chemical writings of this Philosopher, in conse- " quence of his unfortunate attachment to the doc- " trine of Phlogiston."

When the operose experiment of the French chemists on the formation of water, shall have been sufficiently repeated, and verified by other experiments to the same point, less complex, less tedious, less expensive, and easy to be repeated; when the water thus supposed to be formed is sufficiently distinguished from the water absolutely necessary to the generation of all airs, and attendant upon them* both in a state of mixture and combination; and when the difficulties enumerated a page or two back, as attendant on the modern theory shall be explained on the

* Mr. Kirwan found that common inflammable air from iron, and vitriolic-acid, contained about 2-3 of its weight of water mixed with it; which might be separated from the air by means of concentrated vitriolic-acid in a watch glass over mercury, without diminishing the quantity or altering the characteristic properties of the air thus treated.

the new system, as well as on that of Stahl, then, and not until then, will it be time to lament Dr. Priestley's unfortunate attachment to the doctrine of Phlogiston.

Of Dr. Priestley's other Scientific Works.

THE other philosophical labours of Dr. Priestley consist of his history of electricity, his history of the discoveries relating to light and colour, and his popular introductions to perspective, electricity and natural philosophy.

It appears that after the publication of his history of electricity, he intended to have pursued the plan, by composing similar histories of every branch of science: a magnificent idea, and which none but a man conscious of uncommon powers could have contemplated. Few men indeed were so capable of such an undertaking as Dr. Priestley; for independant of his habits of patient and regular industry in his literary pursuits, and the wide field of his attention to scientific objects, he had a facility of perusing, abstracting, and arranging the works of others, not commonly attendant even upon equal abilities in

other respects. This great undertaking of Dr. Priestley to embrace the various departments of philosophy, appears a labour sufficient for one life; and had due encouragement been afforded, this projected series of histories would in all probability have been compleated, usefully to the world, and reputably to himself. But he proposed this undertaking laborious as it was, without designing that it should occupy the whole or the principal portion of his time, but his leisure hours only; for at no period did he postpone his professional duties, or his theological studies, to any other object whatever. The life of Dr. Priestley is almost a perpetual illustration of a seeming paradox, respecting mental energy, that men of talents, uncommonly laborious, and who appear to get through more business than one person could be supposed equal to, have usually more leisure time at their disposal, than those who have little to do: so much does the habit encrease the power of exertion. Nor was any man less averse to the innocent pleasures of social enjoyment than Dr. Priestley, or better calculated as well as more inclined to contribute to the common stock of amusing, and instructive conversation. It cannot

not indeed be truly said of him, as Dr. Johnson* once related of himself, that he had never refused an invitation to dinner on account of business but once in his life, yet no man more readily found leisure for social intercourse. This arose from his habit of dividing his time into certain portions appropriated to his respective pursuits, and determining to perform a certain quantity of literary duty, within the assigned period.

The first edition of his history of Electricity, was in 1767: it went through another edition in 1769, and

* On that day, (Dr. Johnson said) as it was an unusual deprivation, he found himself disinclined, and unable to attend steadily to the work that led him to refuse the invitation. He walked about his library occasionally looking over first one book and then another until about four o'clock when weary of staying within he went to a tavern to dine. Dr. Johnson had for a long time a dislike to Dr. Priestley who bore two of the characters most in disrepute with Dr. Johnson, that of a whig and a dissenter. Dr. Priestley's pursuits also consisting so largely of heterodox theology, which Dr. Johnson abominated, and experimental philosophy which he heartily despised, they had hardly a common point of union. Toward the latter part of Johnson's life, they met; and upon the friendly terms that ought to obtain between two men, who, each in their way, deserved so well of the republic of letters.

and a third in 1775. It was published at a very happy time, when electricity was a favourite object of attention to many respectable men of science then living, and it contributed in a great degree to turn the public attention toward the study of these phenomena. Very much of what has been done since may be fairly attributed to the popularity given to this branch of experimental philosophy by Dr. Priestley. Nor did he confine himself to a mere narration of the labours of others; the second volume contains many new experiments of his own, and some of them form very curious and important additions to the stock of electrical knowledge.*

The

* Dr. Priestley among his other experiments on electricity first ascertained the conducting power of charcoal and the calcination and vitrification even of the most perfect metals by the electric spark. He seems first to have used large batteries, which M. Van Marum and his associates have carried to such extent.

The solutions of the metals, the gasses produced and the circumstances which accelerate and prevent these effects in Galvanic processes with the pile of Volta, as detailed by Dr. Priestley in his paper on this subject in Nich. Journ. for March 1802 p. 198 form very important additions to the mass of knowledge respecting the Galvanic fluid. Nor are his discoveries in pneumatic electricity, of the conversion of oils, spirit of wine and the alkaline gass into inflammable air or hydrogen of less moment.

The discoveries of the last thirty years, particularly including those of Galvanic Electricity, are so numerous, and so dispersed in volumes difficult to be procured, that a continuation of this history is a desideratum in the scientific world; at one time there was an expectation of seeing it from the pen of Mr. Nicholson, whose general knowledge, and industry, as well as his attention to this branch of philosophy in particular, render him peculiarly qualified for the task. But the proposals he communicated to Dr. Priestley, on the subject, were not pursued to effect.*

These histories of detached branches of Science, would not only be highly useful, but they may be considered as in some measure necessary to the accurate pursuit, and advancement of science itself. They are not only useful for the purpose of shewing the discoveries that have been made, and the time of their publication, the ideas that appear to have suggested them, the persons to whom we are indebted for them, and their effect on the spirit of enquiry at the

* Dr. Bostock, who seems to have many requisites to qualify him as the historian of particular branches of science, has published a good attempt toward the history of Galvanism in Nicholson's Journal.

the time, but they prevent a man of science from being led into mistakes, from doing what has been already done, from suggesting what has been already published, and from ignorantly claiming to himself the merit due to the labours of a predecessor. Books are now so multiplied, in languages so various, obtained with so much difficulty, and at an expence so far exceeding the usual means of scientific men, that those who like Dr. Priestley fully and faithfully execute a work of this description are real benefactors to mankind.*

The history of ELECTRICITY was composed by Dr. Priestley in one year. The three editions of the work in less than eight or nine years sufficiently shew that, in the opinion of men of science, it was well composed: otherwise the celerity of its composition, would no doubt derogate from, instead of adding to, the well earned reputation of the author; and rather tend to shew that he was too careless or too conceited to take the necessary pains and employ the necessary time

* The transactions of the various academies and philosophical societies in Europe amount at least to 1000 volumes in quarto. The royal society of England in 1665 led the way to similar institutions.

time to make it fit for public inspection. Every man owes to the public, that if he professes to instruct them, he should dedicate as much labour as the subject demands, or at least as much time as it is in his power to devote to it. I fully accede to the ingenious correction of the *nonum prematur in Annum*, suggested by the witty Dr. Byrom of Manchester; but something of the *Limæ Labor*, respect for the tribunal of the public demands of every man who appears before them in the character of an author. Dr. Priestley has in more instances than one, been accused of unnecessary if not of culpable rapidity in his literary compositions: but he never professed to be a fine writer; he never sought after the beauties of stile; and his common language was sufficiently neat and expressive, to communicate the facts and the arguments upon which it was employed. It is also to be remarked, that the facility of composition which he acquired from long practice, made that labour light to him, which would have been too much for a less skilful and a less experienced composer. In many instances indeed of his rapid publications, he had not to *seek* for arguments, but to express in his unornamented and unaffected manner, the ideas that forced

forced themselves upon him relating to a subject previously considered and upon which he had long made up his mind.

The History of Discoveries respecting LIGHT and COLOURS published in 1772 was a more difficult task, nor did it meet with equal encouragement. Sir Isaac Newton's important labours in this branch of science, could not be fully comprehended without a portion of mathematical knowledge not even then so common as formerly, among the philosophers of the day. Mathematical studies seem to have in themselves very little to interest, compared with other literary pursuits; although by long attention and habit, that interest may be excited and kept up. It was about this time that the popular phenomena of chemistry and electricity more decidedly took their stand in the field of science, and irresistably seized hold on the attention of the world: phenomena, highly amusing in themselves, strongly attractive from their novelty, of evident and immediate application, and that promised an incalculable harvest of honourable and useful discovery, to such as would become their votaries. Little had been done in this department of philosophy, little previous knowledge was required

to

to comprehend all that was known, and those who were unable to read a page of Sir Isaac Newton with profit, could easily mix an acid and an alkali, or turn the wheel of an electrical apparatus.

By this time too, it had been discovered, that there were other powers in nature that must be called in to explain appearances, which the mechanical and corpuscular philosophy had endeavoured to elucidate in vain. Such were magnetism, electricity and chemistry. It began to be found out, that the science of calculation, was but an aukward handmaid to their sister branches of natural philosophy, while physiology, laughed outright at the clumsy addresses of her mathematical admirers, from Borelli to Keill.

The discoveries therefore relating to light and colours, at the time when Dr. Priestley proposed his history, being intimately associated with the study of the mathematics, and the profound investigations of Sir Isaac Newton, were out of the beat of the less laborious, but more fashionable philosophy of the day; and were not so generally interesting to the Sciolists and Amateurs. Hence the work in question, though treated in a very entertaining and popular manner, and by no means crouded with reference

ference to Diagrams or abstruse discussions, was not popular even among that class of readers, who might reasonably be calculated on, as the purchasers of such a performance. The subscribers indeed were sufficiently numerous, and respectable, but by far the majority were defaulters in respect of payment. It did not pay the bookseller: and of course still less did it recompence Dr. Priestley in a pecuniary point of view, especially as he had gone to considerable expence with a view to the completion of his extended plan. To him indeed, though pecuniary loss was a serious evil, pecuniary profit was a consideration of small importance: his motives to literary labour seem uniformly to have arranged themselves as follows, utility, reputation, profit.

The work in question is certainly too brief, considering the importance of the subject: many parts of it, the theory of Huygens, Euler, and Franklin for instance, seem to have merited more discussion. That all the phenomena of light depend on the Sun, as the reservoir, whence all the emanations of that fluid to the various parts of the system are supplied, the lighting of a candle is alone sufficient to refute. The facts discovered to us by modern Chemistry will

will suggest a great many other doubts of the doctrines respecting light, which were regarded as well established when Dr. Priestley's book was written. But it was a faithful account of the knowledge of the day, and an unprejudiced tribute to the reputation of those philosophers who had from time to time extended the boundaries of science on the subjects treated of.

Not a little has been added to the mass of facts then published, by the subsequent experiments of Dr. Priestley himself, and his fellow labourers in the Chemistry of the Gasses: and notwithstanding the experiments of Sir Isaac Newton and his predecessors, the theory of light and colours is not yet rested upon facts sufficiently numerous, and decisive to satisfy the enquiries dictated by the present state of knowledge.

But with all these disadvantages, the work has nevertheless maintained its ground, for we have no where else so systematic, and compleat, though brief an account of what had been made known to the world on this important branch of scientific inquiry. It will always remain a valuable performance; and to the author an honourable one, from the knowledge

ledge and ability required in its compilation, from the fairness of the account it gives, and the entertaining statement of facts and suggestions interspersed through the book.

It is greatly indeed to be wished, that these histories should be continued on the plan which Dr. Priestley has adopted. So that all the prominent facts should be collected in the order of their discovery, and a full view be given of the ground already gone over. Abridgments, do not answer this purpose; the theories that dictated the experiments are not detailed, their truth or their fallacy cannot be judged of, and sufficient merit is not attributed to the labours of the discoverer, or the bearings of his facts on his theory, sufficiently explained. To attain gradually to the summit of the temple of science, we must not only build on the foundations of our predecessors, but know somewhat of their intentions at the time of laying them.

The minor treatises of Dr. Priestley on electricity, perspective and natural philosophy, have this discrimination of character, that they are more calculated to allure young people to the study of those subjects than almost any of the introductions which have either

either preceded or succeeded. Philosophy is made, not an abstruse science, but a delightful amusement. Indeed it was the fort of Dr. Priestley to make knowledge intelligible and popular, and treat it in such a way, as to invite rather than deter, those who were inclined to enter upon these delightful pursuits. The plainness and simplicity of his syllabus, the amusing complexion of the Phenomena, by which he illustrates his doctrines, and the facility with which the one can be made, and the other comprehended, affords a very useful example to those who may have the same object hereafter in view. This was doubtless, owing to his long experience as a teacher: and his success in that capacity among his pupils, with the electrical machine, and the air pump, is full evidence of the practical utility of his plans of instruction.

Catalogue

Catalogue of Dr. Priestley's smaller pamphlets and uncollected papers on philosophical subjects.

Nicholson's Journal. new series.

V. 1 p. 181. Reply to Mr. Cruikshank's.

Ibid 198. Experiments on the Pile of Volta.

V. 2 p. 233. On the conversion of iron into steel.

V. 3 p. 52. On air from finery cinder and charcoal.

V. 4 p. 65. Farther reply to Mr. Cruikshank's.

Amer. Trans.

V. 4 p. 1. Experiments and observations relating to the analysis of atmospherical air.

V. 4 p. 11. Farther experiments relating to the generation of air from water.

Ibid p. 382. Appendix to the above articles.

Ib. Vol. V. Republished

p. 1. Experiments on the transmission of acids and other liquors in the form of vapours over several substances in a hot earthen tube.

p. 14. Experiments on the change of place in different kinds of air through several interposing substances.

21. Experiments relating to the absorption of air by water.
28. Miscellaneous experiments relating to the doctrine of phlogiston.
36. Experiments on the production of air by the freezing of water.
42. Experiments on air exposed to heat in metallic tubes.

} together.

New-York Med. Repos.	*Title and Date.*
Vol. 1 p. 221.	Considerations on the doctrine of Phlog. and the Decomp. of water. (Pamphlet) 1796.
Ibid p. 541.	Part 2d of do. (Pamphlet 1797.)
Vol. 2 p. 48.	(Pamphlet) to Dr. Mitchell.
Ibid p. 163.	(Pamphlet) on Red Precipitate of Mercury as favourable to the doctrine of Phlogiston, July 20, 1798.
Ibid p. 263.	Experiments relating to the calces of metals communicated in a fifth letter to Dr. Mitchell. October 11, 1798. (Pamphlet.)
Ibid p. 269.	Of some experiments made with ivory black and also with diamonds. (Pamphlet) 11 October, 1798.

Ibid p. 383. On the phlogistic theory, January 17, 1799. (Pamphlet.)

Ibid p. 388. On the same subject. February 1, 1799.

Vol. 3 p. 116. A reply to his antiphlogistian opponents, No. 1.

Vol. 4 p. 17. Experiments on the production of air by the freezing of water.

Ibid p. 135. Experiments on heating Manganese in inflammable air.

Ibid p. 247. Some observations relating to the sense of hearing.

Vol. 5 p. 32. Remarks on the work entitled "A brief history of epidemic and pestilential diseases," May 4, 1801.

Ibid p. 125. Some thoughts concerning dreams.

Ibid p. 264. Miscellaneous observations relating to the doctrine of air, July 30, 1801.

Ibid p. 390. A reply to Mr. Cruikshank's observations in defence of the new system of chemistry, 5 Vol. Nicholson's Journal p. 1, &c.

Vol. 6 p. 24. Remarks on Mr. Cruikshank's experiments

periments upon finery cinder and charcoal.

Ibid p. 158. Observations on the conversion of iron into steel.

Ibid p. 271. Additional remarks on Mr. Cruikshank's experiments on finery cinder and charcoal, November 15 1802.

APPEN-

APPENDIX, NO. 2.

Of Dr. Priestley's Metaphysical Writings.

THE principal source of objection to Dr. Priestley in England, certainly arose from his being a dissenter; from his opposition to the hierarchy, and to the preposterous alliance, between Church and State: an alliance, by which the contracting parties seem tacitly agreed to support the pretensions of each other, the one to keep the people in religious, and the other in civil bondage. His socinian doctrines in theology, and the heterodoxy of his metaphysical opinions, though they added much to the popular outcry raised against him, were not less obnoxious to the generality of Dissenters, than to the Clergy of the Church of England. Nor is it a slight proof of the integrity of his character, and his boldness in the pursuit of truth, that he did not hesitate to step forward the avowed advocate of opinions, which his intimate and most valuable friends, and the many who looked up to him as the ornament of the dissenting interest, regarded with sentiments of horror,

ror, as equally destructive of civil society and true religion.

The extreme difference observable between the apparent properties of animal and inanimate matter, easily led to the opinion of something more as necessary to thought, and the phenomena of mind, than mere juxta position of the elements, whereof our bodies are composed. The very antient opinion also of a state of existence after death, prevalent in the most uncivilized as well as enlightened states of society, confirmed this opinion of a separate and immortal part of the human system: for it was sufficiently evident, that no satisfactory hopes of a futurity after death, could be founded on the perishable basis of the human body. It is only of late days, and from the extention of anatomical and physiological knowledge, that the theory, and the facts of animal organization have been at all understood; and without [the conjunction of physiology with metaphysics, the latter would have remained to eternity, as it has continued for ages, a mere collection of sophisms, and a science of grammatical quibbling. The doctrine of a future state, and that of an immaterial and immortal soul, became therefore mutual

supports to each other; and herein the civil power willingly joined in aid of the dogmas of metaphysical theology, from observing the convenience that might arise in the government of civil societies, from inculcating a more complete sanction of rewards and punishments for actions in this life, by means of the dispensations in a life to come. Other causes also gave an universal preponderance to the theory of the human soul. It became, for the reasons above mentioned, not only a favourite doctrine with churchmen and statesmen, but the self delusions among the vulgar, respecting supposed appearances after death, rendered it also a *popular* doctrine. Indeed, in every age, and in every country, the priesthood have found it so powerful an engine of influence over the minds of the people, and in too many cases, so fruitful a source of lucrative imposture, that its prevalence is not to be wondered at, wherever artificial theology has been engrafted on the simplicity of true religion, and supported by an established clergy. Of Popery, which yet remains the prevailing system of the christian world, it is doubtless the corner stone; and even under every form of ignorant and idolatrous worship throughout

out the globe, it is the main source of power and profit to that class of society, which regulates the religious opinions, rites and ceremonies of the country. Not that I would insinuate, that the belief of a separate soul, like some other opinions that might be mentioned, has been generally taught by professors who disbelieve it; for plausible arguments are not wanting, to give it that currency which it has so long received among the wisest and the best of men: nor that an established priesthood of any age or country, or of any religion, is a mere compound of fraud and imposture, for I well know that the wise and the good are abundant in this class of society, as well as in others. But even such men are liable to the common infirmities of human nature; they cannot be indifferent to their rank in society, or the means of their subsistence: it is not every college youth, that is able or willing to weigh "the difficulties and discouragements attending the study of the Scriptures," so forcibly pointed out in the melancholy pamphlet of Bishop Hare: nor is it every professor of christianity, who doubts of the doctrines he has undertaken to teach, that has fortitude enough to follow the noble example of Theophilus

philus Lindsey, and John Disney. Hence we may take for granted, that those opinions will be admitted the most readily, and enforced the most willingly, which contribute to the influence of that order, which the professors have been induced by choice, or compelled by necessity, to wed for life. Choice indeed, at least that kind of choice, which depends on a well-grounded conviction of the object chosen being the means of superior usefulness, has little to do in this business. For though the clergy of the church of England severally declare that they are moved by the Holy Ghost to take upon them the clerical character, is there one among them in the present day (Bishop Horsely perhaps excepted) who would venture to defend this declaration in the sense originally intended? It is a fact notorious, that the candidates for holy orders, regard the profession of Divinity as they would that of Physic or Law, a fair and reputable means of gaining a livelihood, by performing those duties which are considered as necessary to the well being of society. It is a fact too, equally notorious, that wherever theological opinions (like that of the human soul) have been fit and liable to be made subservient to the temporal profit

fit or influence of the clergy, that use has been so made of them by the ambitious and designing part of the profession, and the rights of the people have been encroached upon, to serve the interest of the Hierarchy. Nor is it the established clergy alone that some of the preceding remarks will apply to: much bigotry among the clergy of the dissenting interest, may fairly be ascribed to similar causes, though by no means operating in the same degree.

But important as this doctrine is to the clerical order in political societies, some latitude of doubt and even of denial, has been conceded in England to the known friends and adherents of the established system in that country. This is the more to be wondered at, as they have generally considered a dissonance of opinion among their own order, more fatal to the common interest, than the attacks of their avowed enemies. Thus, more notice was taken of the Arian heterodoxy of Dr. Clarke, than of the avowed infidelity of Collins, Tindal, Toland, Coward, and other writers of that class, who published about the same period.

The learned Mr. Henry Dodwell as he is usually called, and who is a pregnant instance that learning does

does not always persuade good sense to inhabit the same abode, took great pains to shew that the soul was naturally mortal, but might be immortalized by those who had the gift of conferring on it this precious attribute. This power he ascribed to the Bishops. Dodwell, though he would not at first join the establishment, changed his opinion and his conduct in this respect afterward. Bishop Sherlock denied that the existence of the soul could be made evident from the light of nature, (Disc. 2 p. 86. disc. 3 p. 114) Of the same opinion was Dr. Law who quotes him. Archbishop Tillotson declares (v. 12 serm. 2.) that he cannot find the doctrine of the immortality of the soul expressly delivered in scripture. Dr. Warburton wrote his "Divine legation" to prove that Moses and the Jews neither believed in, nor knew of a future state. Dr. Law, afterward Bishop of Carlisle, in the appendix to the third edition of his "Considerations on the theory of religion," compleatly overthrows the whole doctrine of a separate soul as founded on the scripture, by a critical examination of every text usually adduced in its support. Dr. Watson the present Bishop of Landaff in the preface to his collection of theological tracts dedicated to young divines

for

for whose use it was compiled, expressly declares that the question respecting the materiality or immateriality of the human soul, ranks among those subjects on which the *academicorum* εποχη may be admitted, without injuring the foundations of religion. It should seem therefore, that it is not heterodoxy in mere speculative points of theology, that constitutes the sin against the holy Ghost with an established clergy, but heterodoxy on the subject of church authority and the grand alliance. It is in this spirit that the then Archdeacon of St. Albans, Dr. Horsely complains of Dr. Priestley's history of the corruptions of christianity. "You will easily conjecture (says "the Archdeacon in his animadversions on that work "p. 5) what has led me to these reflections, is the "extraordinary attempt which has lately been made "to *unsettle the faith and break up the constitution of* "*every ecclesiastical establishment in Christendom.* "Such is the avowed object of a recent publication "which bears the title of a history of the corruptions "of christianity, among which the catholic doctrine "of the trinity holds a principal place."

This is an unfortunate exposure of the cloven foot of Hierarchy. It was not the wish to detect error or

to

to establish truth—it was not from anxiety to fix upon a firm footing, some great and leading principle of christianity—it was not the benevolent design of communicating useful information on a litigated topic of speculative theology—it was not the meek and gentle spirit of sincere and patient enquiry that dictated those animadversions—all these motives would not only have borne with patience, but would have welcomed and exulted in a temperate discussion of unsettled opinions, before the tribunal of the public; for by such discussions alone, can the cause of truth be permanently and essentially promoted. No! these were not the motives that influenced the Archdeacon of St. Albans. It was the nefarious and unpardonable attempt to unsettle the faith of established creeds; however founded that faith might be, on ignorance or prejudice, on pardonable misapprehension, or culpable misrepresentation, on fallacy, on falsehood, or on fraud. These "Animadversions," proceeded from the morbid irritability of an expectant ecclesiastic; from a prudent and a prescient indulgence of the *esprit de corps*; from a dread too perhaps, lest the tottering structure of church establishment, with all its envied accompaniments of sees and

benefices,

benefices, of deaconries and archdeaconries, and canonries, and prebendaries, and all the pomp and pride of artificial rank, and all the pleasures of temporal authority, and lucrative sinecure connected with it, might be too rudely shaken by sectarian attacks. But enough for the present, respecting these learned labours of the Archdeacon of St. Albans; which like those of Archdeacon Travis may well be considered as having sufficiently answered the *main* purpose of their respective authors, in spite of the wicked replies of Priestley and Porson. Let us say with the public, *requiescant in pace.*

To return however to the more immediate subject of the present section. Hobbes seems to have been the first writer of repute (in England at least) who denied the doctrine of an immaterial and naturally immortal soul. This was a necessary consequence of his faith being apparently confined to corporeal existence, an opinion deducible in fact from the old maxim of the antients and of the schools, *nil unquam fuit in Intellectu, quod non prius erat in Sensu.* Hobbes's Leviathan was published about 1650 or 1651. Spinosa who published after Hobbes was rather an Atheist than a Materialist, a character to which though

though Hobbes's opinions might lead, he does not assume. In 1678 Blount sent forward to the public his "*Anima Mundi*, or an historical narration of the "opinions of the antients concerning man's soul after this life according to unenlightened nature," which met with much opposition and some persecution; as was likely, for it is by no means destitute of merit.

In 1702 appeared a book entitled "second "thoughts concerning the human soul, demonstrat- "ing the notion of a human soul as believed to be a "spiritual and immortal substance united to a hu- "man, to be an invention of the heathens and not "consonant to the principles of philosophy, reason, "or religion by E. P. or Estibius Philalethes." "The year following a supplement was published "entitled "Farther Thoughts, &c." The author preoccupies a path subsequently taken by Dr. Law and Dr. Priestley, and endeavours to shew at length that the notion of an immaterial, immortal soul, is not countenanced by the texts of scripture usually adduced in favour of that opinion. These texts he criticises individually with a reference to the original words used. The author appears in

the

the character of a sincere christian. A second edition of this book was published 1704. In 1706 Mr. Dodwell before mentioned, a learned and laborious but weak man, and bigotted to the hierarchy, published his "Epistolary discourse proving from the "scriptures and the first fathers that the soul is a "principle naturally mortal, but immortalized actu- "ally by the pleasure of God, to punishment or re- "ward; by its union with the divine baptismal spi- "rit. Wherein is proved that none have the pow- "er of giving this divine immortalizing spirit since "the apostles, but only the bishops." This gave rise to the controversy between Clarke and Collins on the immortality of the soul. Dodwell's book was attacked by Chishull, Norris and Clarke. He replied in three several publications, 1st. "A prelimi- "nary defence of the epistolary discourse concern- "ing the distinction between soul and spirit, 1707. "2nd. The scripture account of the eternal rewards "or punishments of all that hear of the gospel, with- "out an immortality necessarily resulting from the "nature of souls themselves that are concerned in "those rewards and punishments, 1703. 3d. The "natural mortality of human souls clearly demon-

" strated from the holy scriptures and the concurrent " testimonies of the primitive writers. 1708.

About this time Toland in his letters to Serena, (1704) gives an " Essay on the history of the soul's " immortality among the Heathens," deducing that doctrine from popular traditions supported by poetical fictions, and at length adopted and defended among the philosophers. Concluding from hence, (preface) that divine authority was the surest anchor of our hope and the best if not the only demonstration of the soul's immortality; an indirect denial of the whole doctrine as coming from Toland, who was certainly no friend to christianity and no believer in the divine authority of the scriptures.

In the same year (1704) but somewhat previous to Toland, Dr. Coward had published his " Grand " Essay, or a vindication of reason and religion " against impostures of philosophy; proving accord- " ing to those ideas and conceptions of things human " understanding is capable of forming itself. 1st. " That the existence of an immaterial substance is a " philosophic imposture and impossible to be con- " ceived. 2ndly That all matter has originally cre- " ated in it, a principle of internal or self motion. " 3rdly

"3rdly That matter and motion must be the foun-
"dation of thought in men and brutes." Dodwell and Toland had learning enough and so had Blount to throw some light on the history of this question, and the author of second thoughts has many observations well adapted to the question he discusses, but very little is to be gained from a perusal of Coward's book.

Dr. Hartley's great work, (great, not from the bulk, but the importance of it) was first published in 1749. The direct and manifest tendency of the whole of his first volume is to destroy the common hypothesis of an immaterial soul: and this he does with a mass of fact and a force of reasoning irresistible. He shews clearly how all the faculties ascribed to the soul, thought, reflection, judgement, memory, and all the passions selfish and benevolent, may be resolved into one simple undeniable law of animal organization, without the necessity of any hypothesis such as that of a separate soul. Yet he does not appear distinctly to have seen the full weight and tendency of his own reasoning, and he adopts a theory on the subject, loaded with more difficulties and absurdities, than even the common hypothesis,

In 1757 was published a philosophical and scriptural inquiry into the nature and constitution "of "mankind considered only as rational beings, wherein "the antient opinion asserting the human soul to be "an immaterial, immortal and thinking substance "is found to be quite false and erroneous, and the "true nature state and manner of existence of the "power of thinking in mankind is evidently demonstrated by reason and the sacred scriptures." Authore J. R. M. I. Who this author really was I know not. But from the perusal of his book it is probable that he was a physician, and had been travelling. The above work he terms the philosophic or first part, and refers to a longer work of his own in manuscript which it seems he could not procure to be published. There is very little new in the book so far as I could judge.

I do not recollect any other treatise relating to the subject that excited public attention in England. In France and Holland La Mettrie began the controversy by his Histoire naturelle de L'Ame, published at the Hague in 1745 as a translation from the English of Mr. Charp;* it is a book containing

* This is probably one of the innumerable instances of the carelessness

many forcible remarks, and did credit to the side of the question which La Mettrie had adopted. Soon after this La Mettrie published L'Homme machine which was burnt in Holland in 1748. This was an honour not due to the formidable character of the work itself, which though it contains some of the common arguments drawn from the physiology and pathology of the human system, is by no means of first rate merit. He whimsically attributes the fierceness of the English, to their eating their meat more raw than other nations. This book was translated and published in London in 1750.

From

---

ness of French authors in quoting English names. La Mettrie most likely meant to ascribe this to Mr. Sharp the Surgeon, with whose reputation he must have been acquainted. I remember Arthur Young Esq. in one of his annals of agriculture complains that a paper of his translated into French was given to Artor Jionge ecuier. Some years ago Mr. Charles Taylor of Manchester (lately secretary to the society of Arts in London) was requested by Lord Hawkesbury to make some experiments to ascertain the value of East India Indigo when compared with the Spanish. Mr. Taylor did ascertain that the former yielded more colour for the same money at the current prices than the latter by above one fourth. In a paper I believe by M. D'Ijonval these experiments are quoted in a note as made by Le Chevalier Charles Tadkos celebre manufacturier de Manchester.

From Mr. Hallet's discoveries the last volume of which was published in 1736 Dr. Priestley has extracted for himself and quoted what he deemed necessary on this question. I do not notice as part of the history of the question Materialism in England, the foreign atheistical publications, such as *Le Systeme de la nature* attributed to Mirabeau the father, *Le vrai sens du Systeme de l'univers* a posthumous work ascribed to Helvetius, *Le Bon Sens* by Meslier, and others whose titles do not now occur to me, because until within these few years, they were hardly known in England, and excited no discussion of the subject there, previous to the work of Dr. Priestley now under consideration.

The Doctor himself says in his preface to the disquisitions on matter and spirit, first published in 1777, that though he had entertained occasional doubts on the intimate union of two substances, so entirely heterogeneous as the Soul and the Body, the objections to the common hypothesis, did not impressively occur to him, until the publication of his treatise against the Scotch Doctors, which was in 1774. Those doubts indeed could hardly avoid occurring to any person who had carefully perused Hartley's

Hartley's Essay on Man, first published in 1749, and Dr. Law's appendix before mentioned in 1755.

Dr. Hartley has shewn with a weight of fact and argument amounting to demonstration, that all the phenomena of mind, may be accounted for from the known properties and laws of animal organization; and notwithstanding, that for some reason or other he has so far accommodated his work to vulgar prejudice, as to adopt the theory of a separate Soul, though in a very objectionable form, it is evidently a clog upon his system, and unnecessary to any part of his reasoning. Substitute PERCEPTION, and his theory is compleat. Nor indeed is it possible to reject this. Constant concomitance is the sole foundation on which we build our inference of necessary connection: we have *no* evidence of the latter, but the former. Perception manifestly arises from, and accompanies animal organization; the facts are of perpetual occurrence, and the proof from induction is compleat.

Hartley having laid a sufficient foundation to conclude (as Dr. Priestley has done) that the natural appearances of the human system might be fully explained by means of Perception and As-

sociation, without the redundant introduction of the common hypothesis, Dr. Law a few years afterward compleatly proved to the christian world that though Life and Immortality were brought to light by the christian dispensation, the common theory of a separate immaterial and immortal soul, was not necessary to, or countenanced by the christian doctrine. Dr. Law seems by his preface, to have been fearful of the consequences of expressing the whole of his opinion on this abstruse subject, and confines himself in his appendix to the examination of the passages of Scripture usually referred to in favour of the Soul's immortality. This appendix I believe was first added to the *third* edition of his Considerations on the Theory of Religion, published in 1755.

Against Dr. Priestley, any ground of popular obloquy would be eagerly laid hold of by the Bigots of the day. The doubts expressed in the examination of Drs. Reid, Oswald, and Beattie, excited so much obloquy, as to render it necessary for Dr. Priestley to review his opinions, and renounce or defend them. The result was, the disquisition on matter and spirit, the first volume containing a discussion of the question of materialism, the second that of liberty and necessity.

In

In discussing the former hypothesis, Dr. Priestley denies not only the existence of spirit as having no relation to extension or space, but also the common definition of matter, as a substance possessing only the inert properties of extension, and solidity or impenetrability. The latter he defines in conformity with the more accurate observations of later physics, a substance possessing the property of extension and the active powers of attraction and repulsion, With Boscovich and Mr. Michell, he admits of the penetrability of matter, and replies to the objections that may be drawn from this view of the subject.

It must be acknowledged that highly curious as this preliminary disquisition is, it is not only unnecessary to the main argument, but leaves the definition of matter open to the question whether there be any substratum or subject in which the essential properties or powers of attracting and repelling inhere. That these powers really belong to matter, whatever else matter may be, is evident from the reflection of light, previous to contact with the reflecting substance and its inflection afterward from the electric spark, visible along a suspended chain, from

from the phenomena of the metallic pyrometers, from the rain drop on a cabbage leaf, &c. And that matter is permeable, at least to light, is sufficiently evident from every case of tranparency. Still however it cannot consist of properties alone; a property must be the property of something. But the proper and direct train of argument in favour of materialism is, that every phenomenon from which the notion of a soul is deduced, is resolveable into some affection of the brain, perceived. That all thought, reflection, choice, judgment, memory, the passions and affections, &c. consist only of ideas or sensations, (i. e. motions within that organ) perceived at the time. Though, judgment, memory, being words, denoting different kinds of internal perceptions, relating only to, and consisting of, ideas and sensations.* That sensations and ideas themselves,

* A *Sensation* is an impression made by some external object on the Senses; the motion thus excited is propagated along the appropriate nerve, until it reaches the Sensory in the Brain, snd it is there and there only, felt or *perceived*.

An *Idea*, is a motion in the Brain, excited there either by the laws of association to which that organ is subject, or by some accidental state

selves, arise only in consequence of the impressions of external objects on our senses, which impressions are liable to be recalled afterward by the recurrence of others with which they were originally associated, agreeably to the necessary and inevitable law of the animal system. That this is evident in as much as there can be no ideas peculiar to any of the senses where there is a want of the necessary bodily organ, as of hearing, sight, &c. inasmuch as all these ideas commence with the body, grow with its growth, and decrease with its decline. That they can be suspended, altered, destroyed, by artificial means, by accident, by disease. That all these properties of mind, viz. thought, judgment, memory, passions, and affections, are as evident in brutes as in men; and though the degree be different, it is always accompanied with a proportionate difference of organization. That perception is clearly the result of organization, being always found with it, and never without it: as clearly so in other animals as

---

state of the system in general, or that organ in particular, without the intervention of an impression on the Senses ab extra as the cause of it. Such a motion being similar to a sensation formerly excited, and being also felt or perceived is the correspondent *Idea*.

as in the human species; and probably in vegetables though in a still lower degree.* That as all the common phenomena of mind, can be accounted for from the known facts of organized matter without the souls, and as none of them can possibly be attributed to the soul without the body, there is no necessity to recur to any gratuitous theory in addition to the visible corporeal frame. That the doctrine of the soul originated in ignorance, and has been supported by imposture; that it invòlves gross, contradictions and insuperable difficulties, and is no more countenanced by true religion than by true philosophy.

All this has been shewn with great force of argument and ingenuity by Dr. Priestley in these disquisitions, to which it may safely be affirmed nothing like a satisfactory answer has yet been given, or is ever likely to be given. True metaphysics, like every other branch of philosophy can only be founded

---

* Dr. Percival, Dr. Bell in the Manchester Transactions, and Dr. Watson in the last volume of his essays, have made this opinion highly probable. Many additional observations are to be found in Dr. Darwin's works. I consider it as a theory established.

ed on an accurate observation of facts, and as these become gradually substituted for mere names, our real knowledge will improve. It is to physiology perhaps that the question of the materiality of the human soul, and even that of liberty and necessity will owe the compleatest elucidation. Until medical writers brought into view the *facts* relating to animal life, the metaphysical disquisitions on these subjects were involved in an endless confusion of words without precise meaning, and almost always including in their definition a *petitio principii*. Indeed we are not yet fully apprized either in Law, Physic or Divinity any more than in Metaphysics, that the *species intelligibiles* of the old schoolmen, and the whole class of abstract ideas of the new schoolmen with Locke at their head, are not things, but names. They are not even either sensations or ideas; they are words, convenient indeed for classification, and used artificially like the signs of Algebra, but they have no archetype. This is a subject which will probably be better understood ere long by the labours of Mr. Horne Tooke.

Dr. Priestley therefore considered the question of a future state, as now rested on the basis which to a chris-

a christian is or ought to be perfectly satisfactory; on the promises and declarations of our Saviour, exemplified by his own resurrection from the dead. Indeed the circumstances of the whole question of futurity depending on the truth of the christian scriptures and on them alone, is calculated to give them a peculiar and inestimable value in the eyes of those who look forward with anxious hope* to a continued and

---

* There are some persons who do not seem to entertain this anxious hope. Mr. Gray the poet seems an instance, from the following passage in his ode Barbaras Ædes aditure mecum (Letters V. 2 p. 44) though I do not recollect that the sentiment has been noticed before.

Oh ego felix, vice si (nec unquam
Surgerem rursus) simili cadentem
Parca me lenis sineret quieto
Fallere Letho.
Multa flagranti radiisque cincto
Integris, ah quam nihil inviderem,
Cum Dei ardentes medius quadrigas
Sentit Olympus!

I wonder whether Gray ever perused the following lines written by his friend and Biographer the Revd: Mr. Mason.

Is this the *Bigot's* rant? Away ye vain!
Your hopes your fears, in doubt, in dulness steep!
Go sooth your souls in sickness, grief, or pain,
With the sad solace of, *eternal sleep*.

Yet

and more perfect state of existence after death. Nor is it of any consequence to the christian, that the manner how this will be effected is not plainly revealed; for it is sufficient that the Being who first gave animation to the human frame, will at his own time and in his own manner for the wisest and best of purposes, again exert the same act of almighty power in favour of the human race, and in fulfillment of his promise through Jesus Christ. Such at least was

---

Yet know ye Sceptics, know, the Almighty mind
Who breath'd on man a portion of his fire,
Bad his free soul by earth nor time confin'd
To heav'n, to immortality aspire.
Nor shall the pile of hope his mercy rear'd,
By vain philosophy be e'er destroy'd;
Eternity! by all or wish'd or fear'd,
Shall be by all, or suffer'd or enjoy'd.

Mason.

It is still more singular that Dr. Beattie with all his professions of christianity, should not have been aware of the atheistical complexion of the following passage in his "Hermit."

Nor yet for the ravage of winter I mourn,
Kind nature the embryo blossom shall save;
But when shall spring visit the mouldering urn!
Oh, when shall it dawn on the night of the grave?

was the view of the subject habitually entertained by our author.

Indeed, the natural evidences of a future state were never conceived by any reasonable defender of the doctrine, to be of themselves satisfactory and conclusive.* They were never deemed of more value than to produce a *probable expectation* of a state of future rewards and punishments, and they are certainly contradicted by the known facts relating to the origin, the growth, and decline of the human faculties. Bishop Porteus has collected these arguments, and stated them with as much force as his moderate abilities would permit; but by far the best summary of what has been urged on this as well as on almost every important question of morals and metaphysics, will be found in Mr. Belsham's Elements of the Philosophy of Mind. An excellent compendium, by a gentleman, to whom next to Mr. Lindsey, Dr. Priestley

* Dr. Priestley in his observations on the increase of infidelity published at Northumberland, has a passage which would seem to intimate that a future state might be clearly made out by the light of nature (p. 59, 60) but this is certainly inadvertency, and by no means conformable to his constant, deliberate, sentiments on that subject as expressed particularly in his Institutes.

Priestley appears to have been more attached than to any other.

The SECOND part of the Disquisitions on Matter and Spirit, contains a discussion of the long contested and confused question of Liberty and Necessity.

Dr. Priestley is right in his opinion that this question was not understood by the ancients, nor perhaps before the time of Hobbes. Long ago it appeared to me, that the only writer among the schoolmen who had touched upon it, was Bradwardine in his Book De causâ Dei, which I regret that I have no opportunity of consulting here. Many of his observations are extracted by Toplady in his treatise on Liberty and Necessity, and in his life of Zanchius; but Toplady like Edwards, did not completely understand the question; they connected the doctrine of necessity with all the bigotry of Calvinism.

Hobbes in his Leviathan, and in his reply to Bramhall on liberty and necessity in his Tripos, first truly stated the subject, and shewed that the question was, not whether we can do what we will, but whether the will itself, (i. e. choice, preference, inclination, desire, aversion,) is not inevitably determined by motives not in the power or controul of the agent.

Hartley's book, however, shews, or rather leads to the conclusion, that these motives are twofold, *ab extra* and *ab intra*. The action depending on the compound force of the motives ab extra, and the physical state of the animal organs at the moment. For the latter is frequently of itself an immediate cause of voluntary action.

But previous to Dr. Hartley's great work, the question of liberty and necessity had been discussed between Collins and Clark, and Clark and Leibnitz.* Collins's Philosophical inquiry into human liberty, first published in 1715 was the only book on the subject worth reading between the times of Hobbes and Hartley, and a masterly and decisive work it is. This appears to have been translated and repeatedly printed on the continent; Dr. Priestley, who republished it in London, mentioning a second edition in 1756 at Paris, and a third edition when he was there

* I do not find that the controversy about the Soul occasioned by the publications of Blount, Coward, Dodwell, &c. involved the question of Liberty and Necessity, though they touch so nearly. It escaped me a few pages back, that Dr. Coward, was also the author of "Second Thoughts concerning the human Soul." (Estibius Psycalethes) as well as of the Grand Essay.

there in 1774. The controversy was kept alive in Collins's life time by Leibnitz; but he like Dr. Edwards who afterwards wrote in defence of the same side of the question in his treatise on Free will, was too much given to expand his ideas, and obscure the sense by the multiplicity of words which he used to express it. The letters of Theodicèe contain many passages well conceived, but the book is insupportably tedious. Hobbes could condense more argument and information in a page, than would serve Leibnitz for a volume.

To this treatise of Collins, plainly and popularly written, no sufficient answer was or could be given. It must have satisfied the mind of every reader capable of understanding the question, though it omitted to notice many objections which were afterwards taken up and fully answered by Dr. Priestley. Collins in his preface takes pains to have it understood that he writes in defence of *moral* necessity only, and not of *physical* necessity. A distinction without a difference, though taken by all who have succeeded him.

I do not dwell on the controversy between Jackson on the one side in defence of human liberty, and

Gordon and Trenchard in Cato's letters, because little was added to the sum of knowledge, on either side. Jackson had learning and industry, but he did not understand the question, and had no pretensions to that species of distinguishing acuteness, so necessary to a good metaphysician.

Dr. Priestley, following the enlarged and cheering views of the future happiness of all mankind, first connected by Hartley with this question, shews completely that the doctrine under consideration has nothing to do with the strict calvinistic hypothesis. That it is sufficiently conformable to popular opinion. That it is the only practical doctrine which in fact is, or indeed can be acted upon with respect to the application of reasoning and argument, reward and punishment. That the formation of character and disposition, the actual inferences we make from, and the dependence we place upon them, rest entirely on the truth of this opinion. That from the nature of cause and effect, every volition must be the necessary result of previous circumstances. That the *scientia contingentium*, the great and insuperable difficulty of God's pretended foreknowledge of uncertain events, can on no other hypothesis be avoided, and that the doctrine

doctrine of necessity is perfectly consistent with the great plan of divine benevolence, in the present state, and future destination, of the human race.

These subjects called forth remarks by Dr. Price, Mr. Palmer, Mr. Bryant, Dr. Kenrick, Mr. Whitehead, Dr. Horseley and others; to all of whom, answers were given by Dr. Priestley.

The controversy with Dr. Price is a pleasing specimen of the manner in which an important subject can be amicably discussed between two friends, and made interesting too, by the manner as well as the matter, without any thing of that "seasoning of controversy" which Dr. Horsely afterward thought so necessary to keep alive the public attention, and which he strews over his polemics with so unsparing a hand. The Bishop had not yet however adopted that stile of arrogance by which he has since been so disgracefully distinguished; and it is to be regretted for the sake of his own character as a gentleman and as a writer, that he adopted it at all. Dr. Horsely should recollect, that those who emulate the insolence of Warburton ought at least to give proofs of equal learning and acuteness; and that bigotry and intolerance in defence of opinions which, though a man may

profess to believe, he can hardly profess to understand, will do no credit to his religious, his moral, or his literary character in the present state of knowledge. But character as a writer, may be a secondary consideration, to one who is determined to verify the saying, that godliness is great gain.*

It has been a misfortune to this question, that it has seldom been treated by persons who knew any thing of the organization or physiology of the human frame; and that it has been complicated with all the prejudice arising from the theological tenets of those who opposed the doctrine of necessity. Every physician knows, though metaphysicians know little about it, that the laws which govern the animal machine, are as certain and invariable as those which guide the planetary system, and are as little within the controul

* Dr. Horseley's polemic strictures on Dr. Priestley's writings, exhibit a singular compound of insolence and absurdity. But he is contented, I presume, if he rises in the church, as he sinks in reputation. Some of his opinions are truly diverting. His theory of divine generation by the Father contemplating his own perfections, and his grave suggestion of the three persons of the Godhead meeting together in consultation, stand a fair chance of being noticed by some wicked wit, who may wish to expose the infirmities of orthodoxy real or pretended.

controul of the human being who is subject to them. Every sensation therefore, and every idea dependent on, or resulting from the state of the sensory, is the necessary effect of the laws of organization by which that state was produced. But we neither have nor can have any sensation or any idea, but what is so dependent, or but what thus results; for we can neither feel nor think without the brain. The words we use for the Phenomena termed mental, are mere terms of classification and arrangement of the sensations and ideas thus produced, and their combinations. Hence it follows, that all these phenomena depend on the laws which regulate the animal system, and are the necessary, inevitable result of those laws. The obscurity which has enveloped this question, has arisen from want of due attention to that state of mind (or rather of body) which we call, the will; and from the power that animals seem to have over the voluntary muscles. But every Physiologist knows that the state of the system which calls into action the voluntary muscles, that is, a state of want, desire or inclination, whether to act or to abstain, is the result of previous circumstances to which the animal is exposed; and the action of the voluntary muscles, is equally

the result of necessary laws, as those of the involuntary.

The great object of terror to the Divines in this question about Necessity, was the consequence resulting, that God is the author of Sin. Many and subtile were the distinctions made upon this subject by the necessarian theologists among the schoolmen, and down to the middle of the seventeenth century. Richard Baxter the peace-maker, in his Christian Directory, his Catholic Theologie and some other works, has briefly reviewed them all, and as usual distinguished upon them so acutely, that what was not quite clear before, he has most effectually obscured. The prevailing opinion, however, seems to have been, not that God permitted the sinful act (for the reply was unanswerable, that God must be considered, as willing that which he does not prevent when he can,) but that God, in the common course of nature as pre-ordained by him, permitted the action itself to come to pass, but not the intention or quo animo of the actor, in which the sin consists; or as Gale expresses it in the quaint language of the time, it is "God's pre-determinate concurse to the entitative act."

Indeed,

Indeed, I do not see with the orthodox notions then prevalent, how it was possible on the hypothesis of God's foreknowing and pre-ordaining all that comes to pass, to avoid considering God Almighty as the author of Sin; and to feel repugnance toward a system, which makes the deity inflict eternal punishment on a creature, whose actions he might have controuled, and whose existence he could have prevented. Such manifest injustice might be viewed without horror, by the brutal bigotry of Calvin, but the tenets that drew after them such a consequence, could not be adopted without hesitation and regret, by any, but the most thorough going, unfeeling zealot.

Origen's doctrine of Universal Restitution, was first advanced in England (so far as I know) by Rust, Bishop of Dromore, and Jeremy White, who I believe had been Chaplain to Cromwell. Since that, the labours of Stonehouse, Petitpierre, Newton, Winchester, Chauncey and Simpson, have furnished ground enough for us to adopt it as the doctrine of scripture as well as of common sense. By connecting this doctrine with that of necessity, Dr. Hartley and Dr. Priestley have been enabled to give a full and satisfactory

factory reply to all the objections that can be drawn from the theory of necessity, making God the author of Sin. Indeed, unless God's foreknowledge be denied, the same difficulty must occur on either scheme: for he has knowingly and voluntarily adopted a system, in which the existence of evil if not necessary, is at least undeniable.

Granting the goodness of God, it follows according to Dr. Priestley, that he has adopted that system which is most conducive to general, and individual happiness upon the whole; and that the moral evil of which for the best purposes he has permitted human creatures to be guilty, and the physical evil, which here or hereafter will be the inevitable consequence of that conduct, are necessary to produce the greatest sum of good to the system at large, and to each human being individually, considering the situation in which he has been necessarily placed in respect to the whole system. Indeed, moral evil is of no farther consequence than as it produces physical evil to the agent, or to others. And as we see in the system of inanimate nature, that general good is the result of partial and temporary evil, and that though the one follows necessarily from general laws as the result

of

of the other, the good manifestly predominates, so in the moral system, we have a right from analogy to predict, that good will be the ultimate result of the apparent evil we observe in it: that we shall be the wiser for knowing what is to be avoided; the better for corrected dispositions; and that the power, and the wish to receive and communicate happiness, will be enlarged through each successive stage of our existence, by the experience of those that have preceded. So at least thought Dr. Priestley.

Leibnitz states some of these ideas with great force in the following passage, which I am tempted to transcribe entire from his *Essais de Theodicèe; sur la Bontè de Dieu, la libertè de l' homme, et l'origine du mal*, first published in 1710. (Prem. partie Sec. 7, 8, 9.)*

Accord-

* *Dieu* est *la premiere Raison des choses:* car celles qui sont bornèes, comme tout ce que nous voyons et experimentons, sont contingentes, & n'ont rien en elles qui rende leur existence necessaire; ètant manifeste que le tems, l'espace & la matière unies & uniformes en elles-mèmes, & indifferentes à tout, pouvoient recevoir de tout autres mouvemens & figures, & dans un autre ordre. Il faut donc chercher *la raison de l' existence du monde,* qui est l'assemblage entier des choses *contingentes:* & il faut la chercher dans *la substance qui porte la raison*

According to this opinion of Leibnitz, the operative motive in the choice of the present system being the attribute of Benevolence in the Almighty, the existence

---

raison de son existence avec elle, & laquelle par consequent est *necessaire* & éternelle. Il faut aussi que cette cause soit *intelligente :* car ce Monde qui existe étant contingent, & une infinité d'autres Mondes étant également possibles & également prétendans à l'existence, pour ainsi dire, aussi bien que lui, il faut que la cause du monde ait eu égard ou relation à tous ces Mondes possibles pour en déterminer un. Et cet égard ou rapport d'une substance existante à de simples possibilités, ne peut etre autre chose que *l'entendement* qui en a les idées ; & en déterminer une, ne peut etre autre chose que l'acte de *la volonté* qui choisit. Et c'est *la puissance* de cette substance qui en rend la volonté efficace. La puissance va à l'*etre*, la sagesse ou l'entendement *au vrai*, & la volonté *au bien*. Et cette cause intelligente doit etre infinie de toutes les manieres, & absolument parfaite *en puissance*, en *sagesse* & en *bonté*, puisqu'elle va à tout ce qui est possible. Et comme tout est lié, il n'y a pas lieu d'en admettre plus d'*une*. Son entendement est la source des *essences*, & sa volonté est l'origine des *existances*. Voilà en peu de mots la preuve d'un Dieu unique avec ses perfections, & par lui l'origine des choses.

8. Or cette suprême sagesse jointe à une bonté qui n'est pas moins infinie qu'elle, n'a pu manquer de choisir le meilleur. Car comme un moindre mal est une espece de bien ; de même un moindre bien est une espece de mal, s'il fait obstacle à un bien plus grand : & il y auroit quelque chose à corriger dans les actions de Dieu, s'il y avoit moyen de mieux faire. Et comme dans les Mathématiques, quand il n'y

ence of all that we term *evil*, is with respect to him, and his preordination of it, *good*; for the whole intention and motive of its permission is founded in perfect goodness

---

n'y a point de *maximum* ni de *minimum*, rien enfin de distingué, tout se fait également; ou quand cela ne se peut, il ne se fait rien du tout; on peut dire de même en matière de parfaite sagesse, qui n'est pas moins reglée que les Mathematiques, que s'il n'y avoit pas le meilleur (*optimum*) parmi tous les Mondes possibles, Dieu n'en auroit produit aucun. J'appelle *Monde* toute la suite & toute la collection de toutes les choses existantes, afin qu'on ne dise point que plusieurs Mondes pouvoient exister en differens temps & differens lieux. Car il faudroit les compter tous ensemble pour un Monde, ou si vous voulez pour un *Univers*. Et quand on rempliroit tous les tems & tous les lieux; il demeure toujours vrai qu'on les auroit pu remplir d'une infinité de manieres, & qu'il y a une infinité de Mondes possibles, dont il faut que Dieu ait choisi le meilleur; puisqu'il ne fait rien sans agir suivant la suprême Raison.

9. Quelque adversaire ne pouvant répondre à cet argument, répondra peut-être à la conclusion par un argument contraire, en disant que le Monde auroit pu être sans le peché & sans les souffrances: mais je nie qu'alors il auroit été *meilleur*. Car il faut savoir que tout est *lié* dans chacun des mondes possibles: l'Univers, quel qu'il puisse être, est tout d'une pièce, comme un Ocean; le moindre mouvement y étend son effet à quelque distance que ce soit, quoique cet effet devienne moins sensible à proportion de la distance, de sorte que Dieu y a tout reglé par avance une fois pour toutes, ayant prévu les prières, les bonnes & les mauvaises actions, & tout le reste; & chaque chose

goodness guided by perfect wisdom. With respect to the finite beings, by whom evil is permitted to take place, there can be no doubt on this scheme, but the balance of existence will be happiness even to them, whenever by proper discipline they are fitted to enjoy it. Perhaps it may be doubted without infringing on the reverence due to the supreme disposer of all events, whether it would be consistent with his justice, knowingly and voluntarily to bring into existence, a sentient being, destined to be permanently miserable.

The question of Materialism, has been discussed since the disquisition of Dr. Priestley, by Mr. Cooper, who adopts the same side. Dr. Ferriar of Manchester, has rendered it dubious how far the sentient principle ought to be confined to the brain, though the facts he adduces, apply with equal force against the

---

chose a contribué *idéalement* avant son existence a la resolution qui a été prise sur l'existence de toutes les choses. De sorte que rien ne peut etre changé dans l'Univers (non plus que dans un nombre) sauf son essence, ou si vous voulez, sauf son *individualité numerique*. Ainsi, si le moindre mal qui arrive dans le Monde y manquoit, ce ne seroit plus ce Monde ; qui tout compteé, tout rabattu, a été trouvé le meilleur par le Créateur qui l'a choisi.

the common hypothesis of a separate soul, acting by means of the body. The doctrine of Necessity has been opposed by Dr. Gregory of Edinburgh, but with a weakness of argument, and a petulance of language, that places his work in the lowest rank among the writers who have adopted the same side of the question. It hardly deserved the notice of so good an advocate as Dr. Crombie, who has been the latest author on the subject.

Indeed, the question must now be considered as settled; for those who can resist Collins's philosophical enquiry, the section of Dr. Hartley on the Mechanism of the mind, and the review of the subject taken by Dr. Priestley and his opponents, are not to be reasoned with. *Interest reipublicæ ut denique sit finis litium*, is a maxim of technical law. It will apply equally to the republic of letters; and the time seems to have arrived, when the separate existence of the human soul, the freedom of the will, and the eternal duration of future punishment, like the doctrines of the Trinity, and Transubstantiation, may be regarded as no longer entitled to public discussion.

It is for this reason that I have paid no attention to the hypothesis of the Scotch Doctors, Reid, Beattie and

and Oswald, and have given no detailed account of Dr. Priestley's examination of their writings. Indeed the perfect oblivion into which these writers have fallen, and the utter insufficiency of such young gentlemen and lady's philosophy as they have adopted, has secured them from further animadversion. The facility with which ignorance can refer all difficulties relating to the phenomena of mind, to instinctive principles and common sense, might answer the purpose of popular declamation for a while, but it could not last; and these writers have fallen into merited obscurity, notwithstanding the national prejudice in favour of each other, so prevalent among the Literati of North Britain.

Some passages in Dr. Reid, however ought to exempt him from the contempt which is due to the common system advanced by him and his coadjutors: and his last book on the Active powers of man, is a work of undeniable merit on a very important subject, which has not yet been discussed with half the labour it so eminently deserves. The Synthesis and Analysis of our ideas, the history and process of their formation, and the detail of facts attending and connected with their rise and progress, is comparatively

tively a new subject. Des Cartes, Buffier and Condillac among the French, Locke, Berkeley and Hartley among the English, and Hume, Reid, and Adam Smith among the Scotch, are almost the only authors worth notice who have treated it expressly, and most of them only partially.* Something may be found to the purpose in Hobbes, and in the first part of Dr. Priestley's examination of Reid, Oswald and Beattie, and more in the first volume of Zoonomia, § 14 and 15.† The common sense of Dr. Reid and Co. seems to have been employed as the *clavis universalis on* this subject by Buffier, in his "First Truths." Hutcheson's theory of the Moral Sense hardly merits notice, nor does that of Dr. Price promise to add much to the stock of real knowledge. We have had enough (*sat superque*) of occult principles, innate principles, and instinc-

* Dr. Dugal Stewart in Scotland, and the Revd. Mr. Belsham in England, have published Elements of the Philosophy of the mind, the first inclining to the Scotch School of Metaphysics, the latter to the System of Hartley; both of them of merit in their way, particularly (as I think) that of Mr. Belsham.

† I cannot help thinking Dr. Darwin's obligations to Dr. Hartley and Dr. Brown ought to have dictated more acknowledgement than he has condescended to make.

instinctive principles, which illustrate nothing, but the ignorance of those who employ them.

For my own part, I am persuaded that no Theory of the mind can be satisfactory, which is not founded on the history of the Body. I know of no legitimate passport to Metaphysics but Physiology. Hence I cannot estimate highly the writings of the Scotch Metaphysicians. There is one other feature also common to this School, which satisfies me of their incompetence to this subject; their slight notice, and ambiguous approbation of a man so superior as Dr. Hartley, and their utter ignorance or neglect of the theory he has advanced. On every subject relating to the phenomena of mind, Dr. Hartley's book must be adopted as the ground work of the reasoning, or his principles must be previously and distinctly confuted.*

There

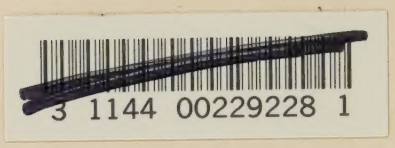
* Dr. Reid in his last work has given a critique on Dr. Hartley's theory without understanding it, or even touching on the important points. That theory in substance is this: an external object (a peach for instance) makes an impression at once, on our organs of feeling, of sight, and of taste. The impression thus made on the extreme end of the appropriate nerve, is propagated by some species of motion along the

The Metaphysics of the present day require also, a more accurate attention to the Theory of Grammar than has hitherto been paid by writers on the subject.

---

the course of the nerve up to the brain, and there, and there only, perceived; for if the nerve be cut, or tied, or palsied, in any part of its course, the impression is not perceived. Motions in the brain thus produced, and perceived, are *sensations*: similar motions arising, or produced without the impression of an external object, are *ideas*. These impressions being in the instance given, simultaneous or nearly so, are associated, so that the sensation produced by the sight of a peach, will give rise to motions in the brain similar to those produced at first by the taste and the touch of it: i. e. it will suggest the *ideas* of taste and touch, and excite the inclination to reach and to eat the object of them. Hence sensations, ideas, and muscular motions are associated together and mutually suggest and give rise to each other. What species of motion it is, with which the nervous system is affected in this process, or whether Sir Isaac Newton's Æther, or its modern substitute the electric fluid, has any thing to do with it or not, is no essential part of the theory, and may be adopted or rejected without prejudice to the main system. Some kind of motion there manifestly is; I think it *demonstrable* that it is vibratory; but of whatever kind it be, its existence in the brain is unquestionable; and the association and catenation of individual motions in the brain according to certain laws, is equally so. This is matter of fact, and it was Dr. Reid's business if he could, to shew that neither the motions, the perceptions, or the associations took place in that organ. The general law is expressed by Hartley Prop. 20. Cor. 7.

ject. Perhaps I do not assert too much in saying that we have had no grammarians worth notice, none who have thrown light on the principles of Grammar, but Locke and Horne Tooke. What dreadful confusion has arisen from treating words denoting what are called abstract ideas, as if they were the exponents of real individual existence? Whereas they are merely signs of artificial classification without any individual archetype. For instance in relation to the present subject, what volumes of laboured and learned trifling have been written on the *Will*, the *Judgment*, the *Understanding* and the other faculties as they are called, of the soul! Yet nothing is more certain than that the will, the judgment, the understanding, &c. have no existence: they are words only, the counters employed in reasoning, convenient signs of arrangement, like the *plus* the *minus* and the *unknown quantity* in Algebra, but no more. The time however is approaching, when Metaphysics will take rank among the Sciences that lay claim, if not to absolute demonstration, yet to an approximation to certainty sufficient for all the purposes of ethical reasoning, and all the practical duties of human life.


3 1144 00229228 1

208.1
P949X3
vol.1 Priestley, Joseph.
Memoirs of Dr. Joseph
Priestley to the year
1795...
97886

208.1
P949X3
vol.1 Priestley, Joseph.
Memoirs of Dr. Joseph
Priestley to the year 1795...
97886

328
POTASKY
12 01 1

WITHDRAWN

DREW UNIVERSITY LIBRARY
MADISON, NEW JERSEY